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ABSTRACT

This book presents the site master plan for the Auraria Higher Education Center, which is dedicated to the offering of an urban-oriented program in higher education and is made up of three institutions -- the Denver Center of the University of Colorado, Metropolitan State College, and the Community College of Denver located on a single site in the heart of the Denver metropolitan area. The site master planning is seen as being the key element leading to the development of a total facility that will provide an effective functional and an inspiring visual environment for the Auraria Higher Education Center. This report presents detailed text and illustrations in connection with the longrange site master plan. Information is included relative to building zones; health, physical education, and recreation/environmental zones; and parking zones. Plans also show street networks, mass transit, pedestrian circulation, energy distribution, expansion potential, and preliminary cost estimates and time schedules. A related document is EA 004 883. (Photographs and charts may reproduce poorly.) (Author/MLF)

ED 072548

Site Planning

Auraria Higher Education Center

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Denver, Colorado
February, 1971

EA 001 881

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The Auraria Higher Education Center is dedicated to the offering of an urban-oriented program in higher education. It is made up of three institutions — The Denver Center of the University of Colorado, Metropolitan State College, and the Community College of Denver located on a single site in the heart of the Denver metropolitan area. This book presents the Site Master Plan for the Auraria Higher Education Center.

SLUDGE
SITE

Contents

1 INTRODUCTION
Background 9
Project Scope 10
Project Development Program 10

2 THE AURARIA SITE
General 13
Service Area 13
Site Location 13
Site Boundaries 14
Topography 16
Soil Conditions 18
100 Year Flood Plain 24
Primary Private Utility Lines 28
Radio Beam 30
Water Mains 32
Sanitary Sewers 34
Storm Sewers 36
Present Buildings 38
Historical Landmarks 40
Present Land Use 46
Zoning 48
Urban Renewal Projects 56
Summary 58

3 FORM GENERATORS
General 61
Students and Faculty 61
The Institutions 62
The City 64
The Site 65
Transportation Systems 65
Pedestrian Circulation 73
Environmental 74
Interim Facilities 77
Land Commitments 77

4 SITE MASTER PLAN
General 79
Building Zones 80
HPER/Environmental Zones 84
Parking Zones 86
Street Networks 90
Mass Transit 94
Pedestrian Circulation 96
Energy Distribution 98
Expansion Distribution 98
Expansion Potential 100
Site Development Costs/Schedule 102

5 SUMMARY
Architectural Philosophy 109
Action Plan 110

6 APPENDIX
A/Planning Workshop Participants 113
B/Supporting Cost Data 113

1/ Introduction

Background

Colorado, like other growing states in the nation, is deep in the process of facing up to the pressures created by the exploding demands being placed upon its state-supported system of higher education. The urgent learning needs of a rapidly growing population must be met if Colorado is to serve its people properly and if it is to maintain or improve its position in the highly competitive race for economic well-being.

In order to provide an effective framework for public higher education, Colorado established a three sector system. This system is made up of the State's universities, colleges, and community colleges. Through these institutions, the people of Colorado may obtain broad-based educational offerings capable of serving the full range of student interests and abilities.

In the summer of 1968, the Colorado Commission on Higher Education undertook a comprehensive study related to the development of an effective framework for higher education in Denver. In 1969, the population of the State of Colorado was 2,099,469 persons. Of that total, 1,137,423 persons or 54.2% reside in the Denver Metropolitan Area which is made up of 5 counties — Adams, Arapahoe, Boulder, Denver, and Jefferson. At the same point in time, only 43% of all Colorado students involved in public higher education were accommodated in facilities located within this 5 county area. Refining these data further, only 36% of the permanent higher education facilities in Colorado were located in the Denver Metropolitan Area and the vast majority of these permanent facilities were provided by the University of Colorado at Boulder and the Colorado School of Mines at Golden. Remaining facilities are temporary-leased or rented by the institutions. Thus, it became obvious to the Colorado Commission on Higher Education that the people of the Metropolitan Denver Area were in great need of opportunities in higher education. It was felt that these people required broad, urban-related programs for all ability and interest levels. Because of the wide variance in student background, it was concluded that higher education must be made available to the people of Denver at the lowest possible cost and in a manner which would provide the student access to his educational program on a part-time basis.

A study was conducted by the Colorado Commission on Higher Education in 1968 to determine the feasibility of a higher education center in the Denver Metropolitan Area. The firm of Lamar Kelsey & Associates/Architects-Planners was employed to conduct that study. A grant made by the Educational Facilities, Inc. of the Ford Foundation made it possible to bring leading educators and campus facility planners into the action as the Feasibility Study was in progress. In brief, the Feasibility Study investigated the evolving nature of the programs and populations proposed for the

University of Colorado Denver Center, the Metropolitan State College, the Community College of Denver, and the Denver Public Schools as a related educational entity.

Based upon knowledge of these major educational units, the Feasibility Study developed a series of planning concepts and recommendations in connection with grouping the three units into a consortium on a land area known as Auraria located in the very heart of the City of Denver. The Feasibility Study reached a series of conclusions. First, it was agreed that the location of the Auraria site was a most appropriate solution to the needs of the urban higher education center. Throughout the study there was little doubt regarding the validity of the urban campus. It was felt that the inner city is "where the action is" in today's society. Its continued vitality is essential. Education is a necessary thread in its fabric. Further, the Feasibility Study concluded that the process of sharing program, people, and facilities should be a major ingredient in the Higher Education Center. If the Denver Center of the University of Colorado, Metropolitan State College, and the Community College of Denver are together, a number of major advantages will surface. A broad curriculum can be offered without unnecessary and costly duplication. The student can move to any sector of education within which he finds educational opportunity of the depth and variety which he seeks and which is in harmony with his abilities. Administrative, faculty, service, and supply economies can be created through sharing. Educational resources of great sophistication can be made available to all students and faculty through sharing. It is likely costs for construction and operation may be reduced through this process. Thus, the Feasibility Study indicated great merit exists in the concept of an urban-oriented consortium such as that proposed for the Auraria Higher Education Center.

Since the completion of the Feasibility Study, Federal, State, and City funds have been made available for purchase of the Auraria site. The Denver Urban Renewal Authority is presently undertaking early steps in connection with site acquisition.

At the present time, the three institutions involved in the Higher Education Center have completed studies of their own facility needs and have undertaken studies to determine which of their facilities can be shared by the three institutions at Auraria. Further, Metropolitan State College has already begun preliminary planning of its facilities on the Auraria site. It is obvious that the planning of the Auraria Higher Education Center is now well under way.

The Site Master Planning — which is the subject of this report — is seen as being the key element leading toward the development of a total facility which will provide an effective functional environment and an inspiring visual environment for the Auraria Higher Education Center. This report presents detailed text and illustrations in connection with the Long-Range Site Master Plan.

Project Scope

The Long-Range Site Master Planning Project was divided into three basic sections — Pre-planning, Planning, and Reporting. The Pre-planning Phase was devoted to the assembly of data related to the so-called Auraria Urban Renewal Site, the land area desired by the Denver Center of the University of Colordo, land areas surrounding the Auraria and CUDC sites, the facility needs of the three institutions participating in the Auraria Higher Education Center, and other data which would assist in the provision of a knowledgeable basis upon which actual planning procedures could be undertaken. Generally speaking, Lamar Kelsey & Associates simply assembled existing data and converted this information into a coordinated and effective format. Much of this information was provided by the Denver Urban Renewal Authority, the City and County of Denver, and the three institutions themselves. As the Auraria Higher Education Center project moves into more detailed planning stages, it will be necessary to confirm the accuracy of these data and to generate much information of a far more definitive nature.

The Planning Phase of the Long-Range Site Master Planning project dealt with the establishment of functional land-use zones on the Auraria and CUDC sites, study of transportation systems both on campus and off campus, study of pedestrian circulation systems on campus and off campus, and studies of special characteristics planned for the sites themselves. It also involved development of cost estimates and time schedules. In many instances, the

planning work was developed in a manner which would present information related to specific enrollment growth phases leading toward maximum development of the facilities at the Higher Education Center.

The reporting phase of the Long-Range Site Master Planning Project included the preparation of an audio-visual report as well as the publication of this book.

Project Development Program

The Long-Range Site Master Planning process has required somewhat over one year, much of which was devoted to the study of facility needs conducted by the institutions themselves. Much time was also devoted to a series of conferences with interested elements of the community. During the progress of the planning phase of this project, a one-week planning workshop was held. This workshop was made possible through a second grant made to the project by the Educational Facilities Laboratories, Inc. of the Ford Foundation.* Much in the same manner as the grant made during the Feasibility Study, this grant provided the project a group of highly competent experts in the field of campus planning drawn together from all parts of the nation for a one-week period of concentrated planning activities. The workshop allowed the planning team to develop and test broad concepts of the Higher Education Center facilities using the wide spectrum of experience provided by the specialists as a sounding board.

The Project Development Program has been accomplished in accordance with the following schedule:

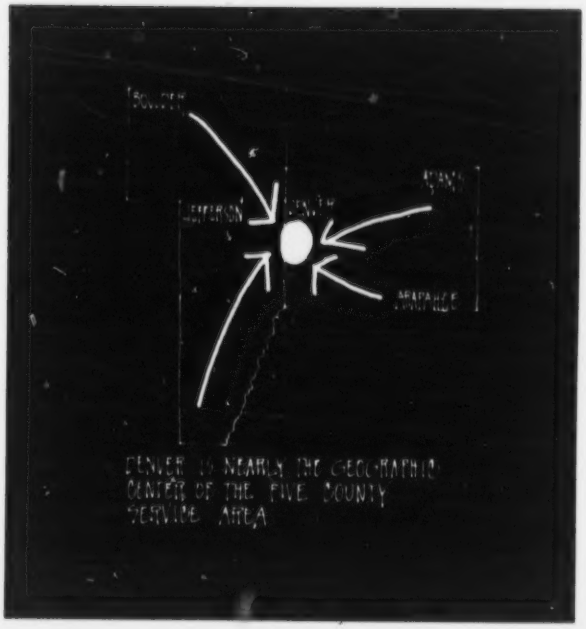
TASK	COMPLETION
Pre-planning	March 1970
Planning Workshop	August 1970
Preliminary Planning	October 1970
Review	December 1970
Final Planning	January 1971
Written Report	February 1971

*Refer to Appendix A for a listing of the Planning Workshop participants.

2/ The Auraria Site

General

This section of the Long-Range Site Master Planning report for the Auraria Higher Education Center is designed to present data in connection with the characteristics of the site. While there are actually two site areas involved in the total Higher Education Center — the land area west of Cherry Creek known technically as the Auraria Urban Renewal Project and the land area east of Cherry Creek which is the present and intended site for the Denver Center of the University of Colorado — the major thrust in this report is toward the Auraria Urban Renewal Project site which is the largest of the two and which will contain the majority of the facilities for the Center. In this section of the report, we begin with a brief overview of the site in relationship to the basic service area of the Auraria Higher Education Center and gradually narrow the focus of our study to the specific site itself. Rather detailed reports are made setting forth primary characteristics of the specific site.

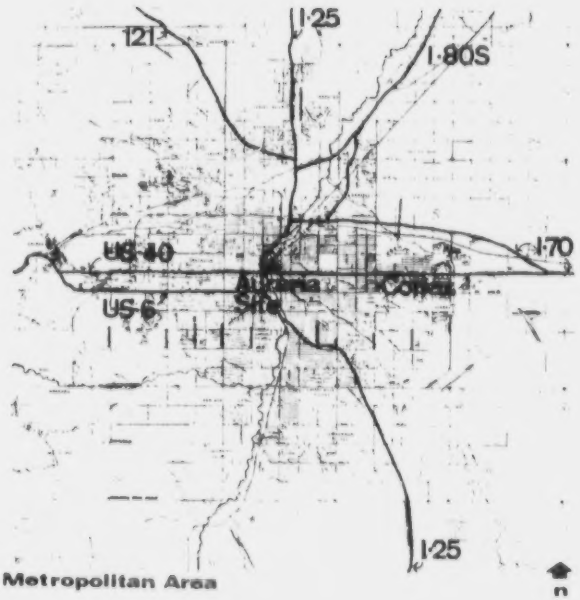


Service Area

The City of Denver is very close to being the geographic heart of the basic service area of the Auraria Higher Education Center. The service area is made up of Adams, Arapahoe, Boulder, Denver, and Jefferson Counties. This geographic grouping is known as the Denver Metropolitan Statistical Area. It is a vital and dynamic urban area with a population which is exhibiting a strong growth trend. Studies performed by the Denver Research Institute/University of Denver have indicated that the area's diversified economic base has produced a high degree of stability and that the functional emphasis placed on such elements as education, medical services, research, and space age technology has been reflected in the Denver Metropolitan Area's average level of income, education, and the housing of its citizens.

Site Location

The map of the city-centered metropolitan area graphically illustrates the centrality of Auraria within the most highly populated portion of the five-county service area. Major elements of the highway network are also shown on the city-centered area map. Because it is the nature of an urban campus to be populated primarily by commuter students, the relationship between site location and the location of the major highway/street network is a particularly critical one.



Metropolitan Area

The so-called Auraria area site already involves commitments by the University of Colorado/Denver Center which occupies its own facilities on the east bank of Cherry Creek and by the Denver Public Schools in the use of the Emily Griffith Opportunity School within several blocks of the Denver Center.

Site Boundaries

Boundaries of the proposed site for the Denver Center of the University of Colorado and of the Auraria Urban Renewal Project site are described below and illustrated on the drawing on Page 15.

THE CUDC SITE

Colorado University/Denver Center presently owns a ground area of some 66,000 square feet on the block bounded by 13th Street, Lawrence Street, 14th Street, and Arapahoe Street. Existing buildings on this land are gradually being modernized and converted from their previous uses into effective facilities appropriate to the needs of the University.

At the time of this study, the following property is owned by the State of Colorado in behalf of the University of Colorado/Denver Center:

1/ Obtained from the Denver Tramway Corporation, Lots 17-23 inclusive, Lot 73 East Division, City of Denver, between 14th and 13th on Arapahoe.

2/ Obtained from Isadore and May Miller, Lots 1, 2, 3, 4, and the northeasterly one-half of Lot 5, Block 73, City of Denver, on Lawrence Street.

The University is presently seeking to expand its land holdings through the acquisition of the following properties:

1/ The remainder of the block presently occupied by the University and bounded by 13th Street, Lawrence Street, 14th Street, and Arapahoe Street.

2/ The land area bounded by Speer Boulevard, Larimer Street, 14th Street, and Lawrence Street.

3/ The triangular property bounded by Speer Boulevard, 13th Street, and Arapahoe Street.

4/ Air rights above automobile parking structures planned by the Denver Urban Renewal Authority and located on the two-block area bound by Speer Boulevard, Arapahoe Street, 14th Street, and Curtis Street.

5/ Property adjacent to Cherry Creek which will be vacated if and when Speer Boulevard is rerouted as indicated on later pages of this report. This land rests between Lawrence and Larimer Streets.

In the buildings presently owned by CUDC and located on the site area described in previous paragraphs, there are some 218,000 gross square feet of space in the classroom and tower buildings and 54,500 gross square feet in the Library Building.

The University is presently in the process of planning additions and renovations as part of a continuing program of upgrading the facilities at the Denver Center.

THE AURARIA SITE

The Auraria site was selected by Metropolitan State College as the site of its campus in 1968 after a thorough selection procedure. This land area, which is occupied by marginal and deteriorated industrial buildings intermixed with older residential structures, is rich in historical background. On this ground was Denver's first public school, its first hotel, and its first water system. Several significant structures on the site have been set aside as historical landmarks. These structures will be discussed in a special section of this portion of the report.

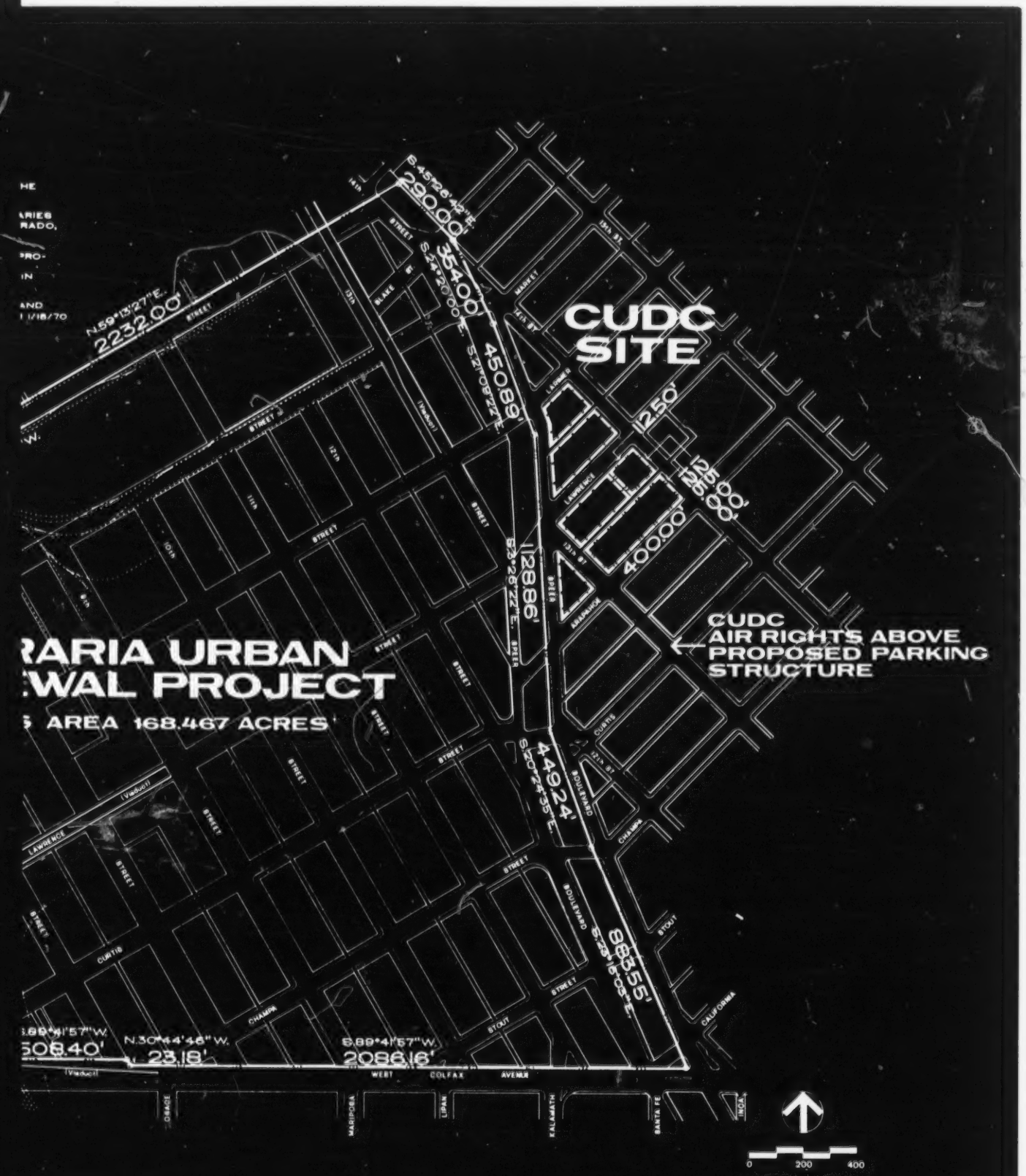
In very general terms, the Auraria site is located immediately west of Denver's core city commercial area. It lies in a land area between Cherry Creek and the main lines of the Denver and Rio Grande Western Railroad, just north of West Colfax Avenue. The legal description identifies the site as being located in Section 33, Township 3 South, Range 68 West, of the Sixth PM, of the City and County of Denver.

The following is the boundary description of the Auraria Urban Renewal Project as provided by the Denver Urban Renewal Authority: "Beginning at the point of intersection of the north right-of-way line of West Colfax Avenue and the northeasterly right-of-way line of the official channel of Cherry Creek: thence, northwesterly along the northeasterly right-of-way line of said Cherry Creek Channel to the point of intersection with the northwesterly right-of-way line of Wazee Street extended: thence, southwesterly along the northwesterly right-of-way line of said Wazee Street extended to the point of intersection with the southwesterly right-of-way line of Sixth Street: thence, southeasterly along the southwesterly right-of-way line of said Sixth Street to the point of intersection with the north right-of-way line of West Colfax Avenue: thence, easterly along the north right-of-way line of said West Colfax Avenue to the point of beginning."

SITE BOUNDARIES DRAWING

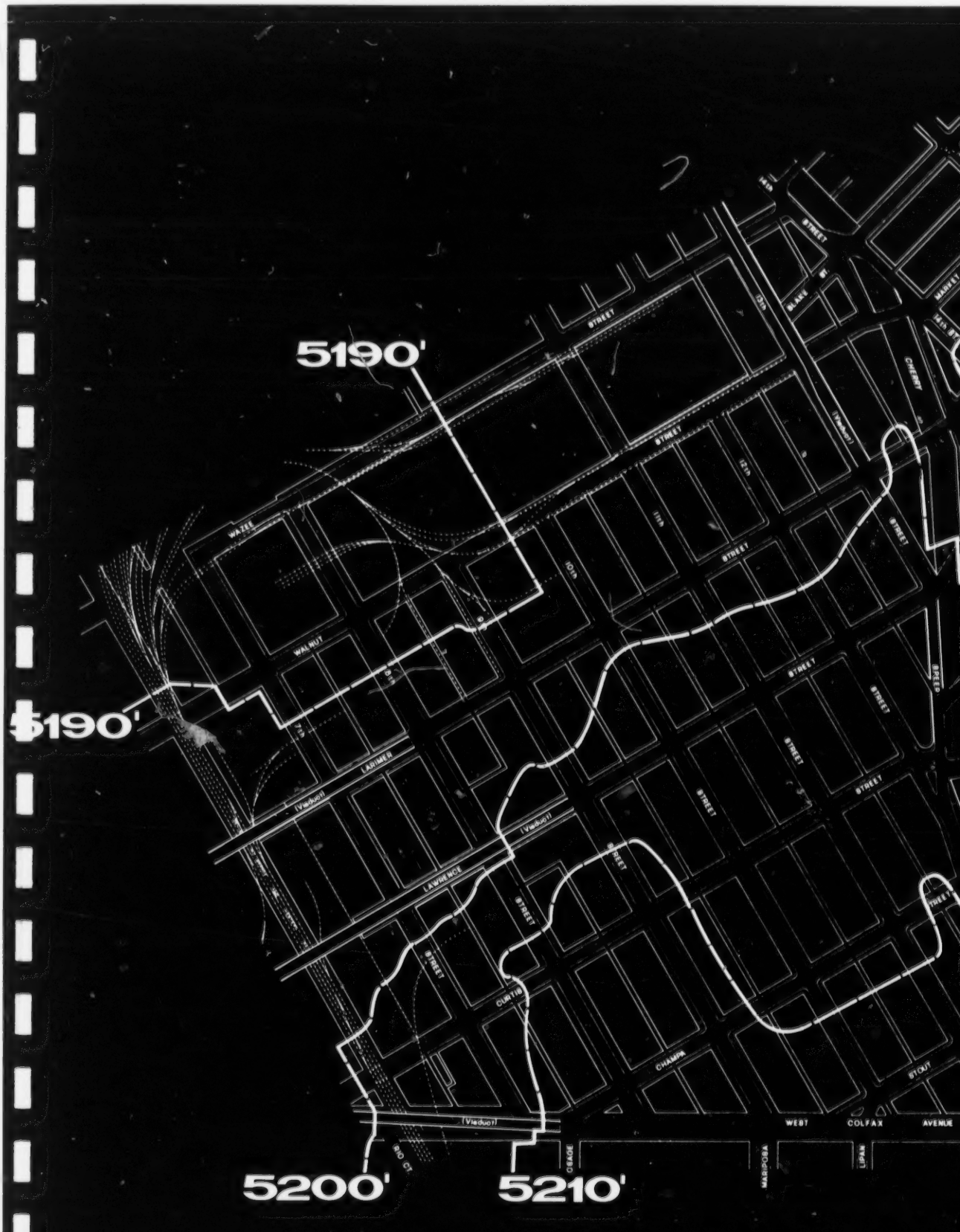
The site boundaries drawing indicates the boundaries of the Auraria Urban Renewal project site, the boundaries of the existing University of Colorado/Denver Center site, and the boundaries of property in which the University of Colorado is interested for purposes of expansion. Prior to the undertaking of actual physical planning of any facility in connection with the Higher Education Center, it is urged that the data contained on this drawing be replaced by detailed boundaries survey conducted by a qualified engineering firm.

KEY
INDICATES BOUNDARIES OF THE AURARIA SITE.
INDICATES EXISTING BOUNDARIES OF THE UNIVERSITY OF COLORADO, DENVER CENTER.
INDICATES BOUNDARIES OF PROPERTY THE UNIVERSITY OF COLORADO IS INTERESTED IN FOR EXPANSION.
* PER COMPUTATION MADE BY D.U.R.A. AND RECEIVED FROM MR. WAYNE A. McANINCH 1/18/70.
AURARIA URBAN RENEWAL PROJECT
GROSS AREA 168.467 ACRES*
N.59°13'27"E. 2232.00'
S.45°26'42"E. 2900.01'
S.24°20'00"E. 3540.00'
S.21°09'22"E. 4508.89'
S.32°26'22"E. 1288.61'
S.20°24'35"E. 4492.41'
S.28°18'05"E. 885.55'
S.89°41'57"W. 508.40'
N.30°44'46"W. 23.18'
S.89°41'57"W. 2086.16'
N.30°44'46"W. 2055.01'
N.30°44'46"W. 12.00'
S.30°44'46"E. 12.00'
N.59°13'27"E. 1820.01'
N.59°13'27"E. 556.50'
WEST COLFAX AVENUE
LAWRENCE
CURTIS
CHAMPA
STOUT
BOULEVARD
WALNUT
BLAKE ST.
MARIPOSA
LIPAN
KALAMATH
SANTA FE
GRAGE


CUDC SITE
CUDC
AIR RIGHTS ABOVE
PROPOSED PARKING
STRUCTURE
RARIA URBAN
WAL PROJECT
AREA 168.467 ACRES
N.59°13'27"E.
2232.00'
S.45°26'40"E.
290.00'
354.00'
S.27°09'22"E.
450.89'
125.0'
125.00'
400.00'
S.32°26'22"E.
1288.6'
S.20°24'35"E.
449.24'
S.23°16'05"E.
883.55'
S.89°41'57"W.
508.40'
N.30°44'46"W.
23.18'
S.89°41'57"W.
2086.16'
0
200
400

Topography

Neither ground nor aerial surveys of the land area selected to serve as the permanent site for the Auraria Higher Education Center were available for use in the preparation of this report on the Long-Range Site Master Plan. Because of this, and because the slope of the land is relatively gentle and uncomplicated, topography available from the United States Geological Survey has been used for the purposes of this study alone. Prior to physical planning for site elements or buildings on this land area, it is recommended that a complete and detailed topographical survey be obtained.


5190'
5190'
5200'
5210'
WAZEE
WALNUT
LARIMER
LAWRENCE
CURTIS
CHAMPA
STOUT
COLFAX
AVENUE
WEST
SPEER
CHERRY
BLAKE
MARKET
GRANT
GAGE
MARIPOSA
LIPAN
[Viaduct]
STREET

5200'
5210'
90'
0'
5210'
WEST COLFAX AVENUE
0 100 200 300 400

Soil Conditions

General

The soil data presented in summary form herein is based on two primary sources. For the Auraria Urban Renewal site, a study was made by Woodward-Clyde & Associates in behalf of the Colorado Commission on Higher Education. A complete copy of that study is on file at the offices of the Commission. For the Skyline Urban Renewal Project, soil data were prepared by Chen & Associates, Inc. and provided by the Denver Urban Renewal Authority. A complete copy of the Chen study is available in the DURA office.

The information contained in this section of the Auraria Higher Education Center Long-Range Site Master Planning report is presented for general information only. When further detail is required, it is suggested reference be made to the complete studies mentioned above. Definitive site selection for buildings as well as physical planning for buildings should be based upon detailed investigations of sub-surface soil conditions conducted by qualified soils engineers. The recommendations, conclusions, and other data contained herein are those of the soils engineers who conducted the preliminary sub-soil investigations and consultations.

Soil Conditions/Auraria Urban Renewal Project Site

The following data deal with the Auraria Urban Renewal Project Site and were prepared by Woodward-Clyde & Associates.

SUBSOILS

The test holes indicate that up to approximately 20 feet of man-made fill is underlain by loose to medium dense sands and gravels with occasional stiff clay layers (Platte River and Cherry Creek alluvial deposits) and then by claystone bedrock found at depths of 8 to 47 feet. The man-made fill is shallow (up to 4 feet thick over most of the site) except in the westerly portion and along Cherry Creek north of Curtis Street where depths range from 5 to as much as 20 feet. Areas where the man-made fill is in excess of 10 feet in depth are shown on the accompanying drawing. The alluvial sands are generally loose near the surface becoming medium dense at depths greater than 10 feet. The upper, loose sands are believed capable of supporting low loads and the medium dense sands are believed capable of supporting moderate loads. The claystone bedrock is medium hard to hard near the surface, becoming hard to very hard with depth, and is capable of supporting heavy loads. Estimated contours of equal depth to bedrock are shown on the accompanying drawing.

Free water was found at depths of 5 to 14 feet, generally at about 10 feet. It must be assumed at this time that the free water will rise at least 5 feet above the levels measured during wetter years and seasons and will respond rapidly to water level changes in the South Platte River and Cherry Creek. The soil engineers recommend further study be done to determine more exactly the extent of this free water and the levels within which it fluctuates. From this, the subsurface drainage requirements could be more readily defined.

STRUCTURE FOUNDATIONS

In the opinion of the soil engineers, the best type of foundation for heavy structures, and for light structures where the depth to the claystone is shallow, will be straight-shaft piers drilled into the claystone bedrock. It is believed final investigations will confirm that such piers may be designed for maximum end pressures of approximately 30,000 to 60,000 PSF with a side shear of about 1/10th the maximum end pressure for that portion of the pier in bedrock. Pressures in the lower end of the range will be applicable for lightly loaded piers drilled to shallow depths into the claystone. Pressures in the high end of the range will be applicable for heavily loaded piers penetrating more than about 10 feet into the claystone. Because of caving soils and shallow ground water, pier holes will require temporary casing into the claystone. This casing will permit dewatering, cleaning, and inspection prior to pouring concrete. It is believed a minimum pier diameter of approximately 30 inches will prove appropriate.

The soil engineers believe the best type of foundation for lighter structures, considering both safety and economy, will be spread footings on the natural sands and gravels below frost depth. The upper, loose sands are capable of supporting spread footings designed for maximum soil pressures of approximately 2,000 to 3,000 PSF. The deeper, medium dense sands and gravels will support spread footings designed for maximum soil pressures approximately 4,000 to 6,000 PSF. Higher soil pressures could be utilized for spread footings at shallow depths if the loose sands were removed to a depth equal to one footing width below foundation level and replaced with the same sands compacted to 100% density

FLOOR SLABS

In the opinion of the soil engineers, the man-made fill should be removed from under floor slabs and be replaced with controlled fill. The natural sands and gravels are firm enough to support normal, lightly loaded interior floor slabs. Base course compacted to high density will be required under floor slabs subjected to vehicular loads. Basement floor slabs may require special consideration where excavations extend into the claystone bedrock. The claystone will swell upon wetting and cause the slabs to heave. Shallow ground water will require either design of basement floor slabs for hydrostatic uplift or provision of a subsurface drainage system beneath the slabs.

EXCAVATION SLOPES AND DIFFICULTIES

The soil engineers believe the man-made fill and the natural sands and gravels can be excavated without difficulty using normal earthwork equipment. The bedrock can be excavated without blasting, but will require heavy ripping equipment. Light blasting or air spade work may prove necessary as a construction expedient in confined excavations that are inaccessible to heavy ripping equipment. The soil engineers believe the sands and gravels will stand on temporary construction slopes of approximately 1:1 above the water table, but will cave back to 2½:1 or flatter below the water table unless dewatering is accomplished in advance of excavation.

CONCLUSIONS

1/ Man-made fill, generally shallow but locally up to approximately 20 feet deep, is underlain by loose to medium dense sands and gravels and then by claystone bedrock at depths of 8 to 47 feet. Free water was found at depths of 5 to 14 feet.

2/ The soil engineers believe the best type foundation for heavy structures will be straight-shaft piers drilled into the claystone bedrock.

3/ In the opinion of the soil engineers, low to moderate pressure spread footings on the natural sands and gravels will be the best type foundation for light structures where man-made fill is shallow.

4/ The natural sands and gravels will provide satisfactory support for normal, lightly loaded interior floor slabs. Where man-made fill occurs below floor slabs it should be removed and replaced with controlled fill.

5/ Basement floors will require special consideration because of shallow ground water and swelling claystone.

KEY TO SOILS

Topsoil, sand, silty, moist, some organic, dark brown (SM).

Man-made fill, clay, sand, cinders, coal, bricks, trash.

Sand, medium dense, silty, moist, brown, tan (SM).

Sand, medium dense, slightly clayey to clayey, moist, brown (SC).

Sand, medium dense, slightly gravelly to gravelly, moist, brown, tan (SP).

Gravel, dense, clayey, moist, gray (GC).

Clay, medium stiff to stiff, sandy, moist, brown (CL).

Clay, very stiff, moist, olive, brown (CL, CH).

Claystone, medium hard to hard, moist, gray, tan (bedrock).

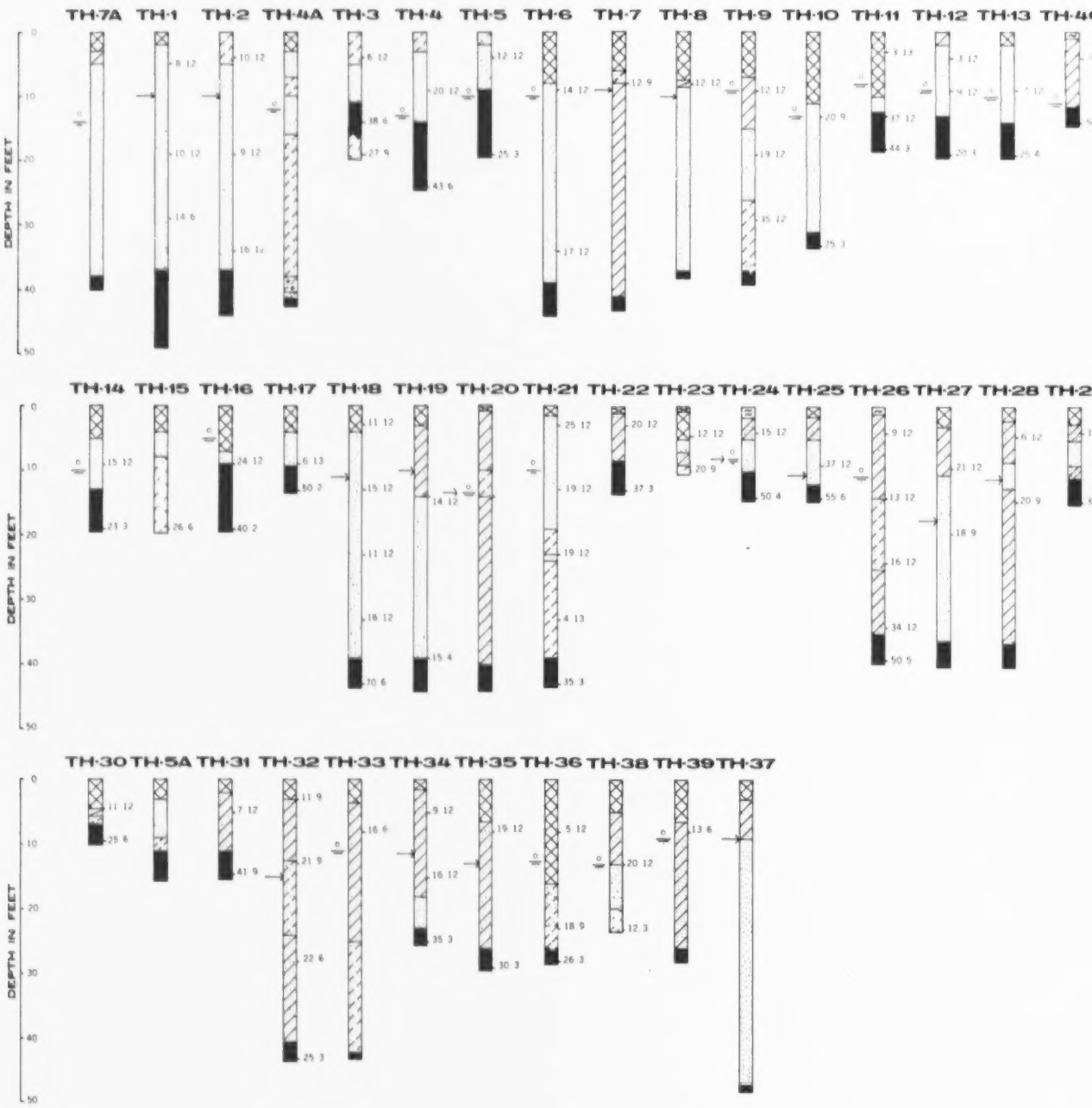
Claystone, or sandstone, hard to very hard, moist, gray (bedrock).

8/12 Indicates that 8 blows of a 140-lb. hammer falling 30 inches were required to drive a 2-inch diameter sampler 12 inches.

Free water level and number of hours after drilling that measurement was taken.

Depth at which hole caved.

LOG


TH-7A TH-1 TH-2 TH-4A TH-3 TH-4 TH-5 TH-6 TH-7 TH-8 TH-9 TH-10 TH-11 TH-12 TH-13 TH-14
TH-14 TH-15 TH-16 TH-17 TH-18 TH-19 TH-20 TH-21 TH-22 TH-23 TH-24 TH-25 TH-26 TH-27 TH-28
TH-30 TH-5A TH-31 TH-32 TH-33 TH-34 TH-35 TH-36 TH-38 TH-39 TH-37
DEPTH IN FEET
0
10
20
30
40
50

NOTES:

1/ Test Holes 4A, 5A, and 7A were drilled September 20, 1967 and Test Holes 1 through 40, November 6-22, 1969, with a 4-inch diameter helical power auger.

2/ Drill logs in this report are subject to limitations, explanation and conclusions stated in the full Woodward-Clyde & Associates' report.

Soil Conditions/Skyline Urban Renewal Project

This portion of the soil conditions summary deals with the Skyline Urban Renewal Project upon which the site for the permanent campus of the University of Colorado/Denver Center is located. Data contained herein are summarized from a preliminary soil and foundation investigation performed by Chen & Associates, Inc. in behalf of the Denver Urban Renewal Authority. The total project covers an area bounded by Speer Boulevard, 20th Street, Champa Street, and Larimer Street.

The preliminary investigation in its complete form includes the determination of possible foundation types for the various configurations of buildings which might be constructed in the area and the general bearing capacity of the upper soils as well as the bearing capacity of the lower bedrock. It provides a detailed analysis of the physical characteristics of the various subsoil strata and general criteria on the pavement design for the area. A total of 69 exploratory holes were taken within the Skyline Urban Renewal site, 22 of these were drilled into bedrock, 9 were drilled to a depth of 25 feet, and 38 were drilled 4 feet deep for the purpose of determining the subgrade bearing value. The 25 test hole locations shown on the drawing on Page 23 are holes which were only 4 feet deep. The deeper holes are located in portions of the Skyline Urban Renewal project beyond the boundaries indicated on the drawing. Because of this, test hole logs have not been included in the text of this report. They are available, of course, for reference purposes in the offices of the Denver Urban Renewal Authority.

SUBSOILS

Subsoil conditions within the Skyline Urban Renewal area are very erratic. Generally, they consist of four major soil strata and are described as follows:

Existing Pavement — The existing pavement consists essentially of an asphalt wearing course on concrete over a thick base course material. The total thickness of the pavement and base course is about 20 to 24 inches.

Fill Material — Fill material was found in many exploratory holes. Most of this material consists of fairly clean soils containing very little trash. In general, the fill material found was loosely compacted.

Gravelly Sands — Most of the upper soil in the area consists of gravelly sands which vary from 10 percent to more than 50 percent gravel. Maximum size of the boulders exceeds 5 inches. Silt or clay lenses were found occasionally in the gravelly sand deposit. In general, the gravelly sands are dense and this density increases with depth. This material is excellent for the support of building structures.

Clays — In several exploratory holes, a thick layer of clay was foun
This layer was sandwiched between the gravelly sand stratum ar
situated immediately above the bedrock. In general, the clay d
posit is stiff and will not settle excessively under moderate pressur

Bedrock — The top surface of the bedrock was found at depth
16 to 48½ feet below the existing ground surface. The bedroc
consists essentially of claystone which, at the lower depths, b
longs to the typical Denver Blue Formation. In several holes, ve
hard sandstone bedrock was found in the bedrock formation.

A water table was found at depths varying from 12 to 49 feet b
low existing ground surface. Due to the caving nature of the u
per soils, the exact water measurement could not be obtaine
Since the water table in general is low, it should not pose muc
of a problem in the design and construction of the structures. Th
water table does, however, pose a difficulty to any pier drillin
operation.

FOUNDATIONS

High Rise Buildings — High rise buildings are considered here
be those which exceed 10 stories in height and exceed a colum
load of 1,000 kips. Based upon past experience, the soil enginee
believe the most economical foundation system for high rise buil
ings in this area is straight-shaft piers drilled into bedrock. Th
following items should be considered in the design of this pi
system:

1/ The bearing capacity of the Denver Blue Formation is approx
mately 60,000 PSF maximum. If it becomes desirable to d
sign the piers in excess of 60,000 PSF, it will be necessary t
conduct a full scale load test at the building site to determin
the actual settlement of the Denver Blue Formation. From th
test results, it is estimated that under a 60,000 PSF pressure
the maximum settlement of the piers will be from 2 to 2½
inches.

2/ The drilling of pier holes for high rise buildings in the down
town area is a delicate operation and can only be performe
by an experienced driller. Because water will seep into the dri
holes, both from the upper soils and from the seams in th
lower bedrock, all holes should be cased above bedrock. In o
der to foresee all unexpected difficulties that may be encoun
tered in the drilling, it is recommended that a large diamete
trial pier hole be drilled before the Contractors enter their bids
This should minimize expenses involved in additional work.

3/ The hardness of bedrock in the Denver Blue Formation increase
with depth. This hardness increases at the rate of approx
mately 3% per foot and the skin friction increases at the sam
rate. Consequently, a great gain on the pier carrying capacit
can be obtained by drilling further into bedrock.

4/ For high rise buildings, the foundation constitutes the most important part of the entire structure. Because of this, it is recommended there be full-time inspection on the pier drilling operation in order to insure that the piers are founded on reliable material. This can be accomplished by having an engineer enter each individual pier hole and carefully examine the formation of the bedrock.

Intermediate Size Buildings — Intermediate size buildings are considered here to be buildings which are about 6 to 7 stories high and which have a column load of less than 1,000 kips. The test holes indicate that at a depth of 10 feet below existing grade the gravelly sand strata are generally dense enough to support this building size by the use of spread footings. The following considerations should be given to the design of the spread footing foundation:

1/ The most important consideration governing a safe spread footing foundation is the consideration of settlement. The soil engineers indicate that for a steel structure, a differential settlement of three-quarters of an inch can usually be tolerated. For a rigid concrete structure, a differential settlement of one-half inch can usually be tolerated. In the design of footings it is therefore essential that the maximum differential settlement should be within tolerable limits. This can be accomplished by proportioning the size of the footings in accordance with the allowable maximum soil pressure. Consideration should also be given to the wetting conditions as well as to the rise of the water table.

2/ The soil engineers believe the maximum soil pressure of the gravelly sands should be in the magnitude of 4,000 to 8,000 PSF. An investigation should be made on individual buildings to accurately determine the maximum allowable pressure. If clay lenses or soft pockets are present in the gravelly sand strata, the settlement of the footings could increase and thus increase the differential settlement. This should be carefully considered.

3/ In case the gravelly sand stratum is not capable of supporting a high column load, several foundation alternatives can be used in order to increase the loadbearing capacity. These are as follows:

A/ The use of raft foundation

B/ The use of gravel pads beneath each individual footing, thu distributing the load to a larger area

C/ The increasing of basement depth or increasing the heigh of the foundation wall to reach the lower, dense, gravell sands

Serious consideration should be given to these detailed four dation designs for each individual building.

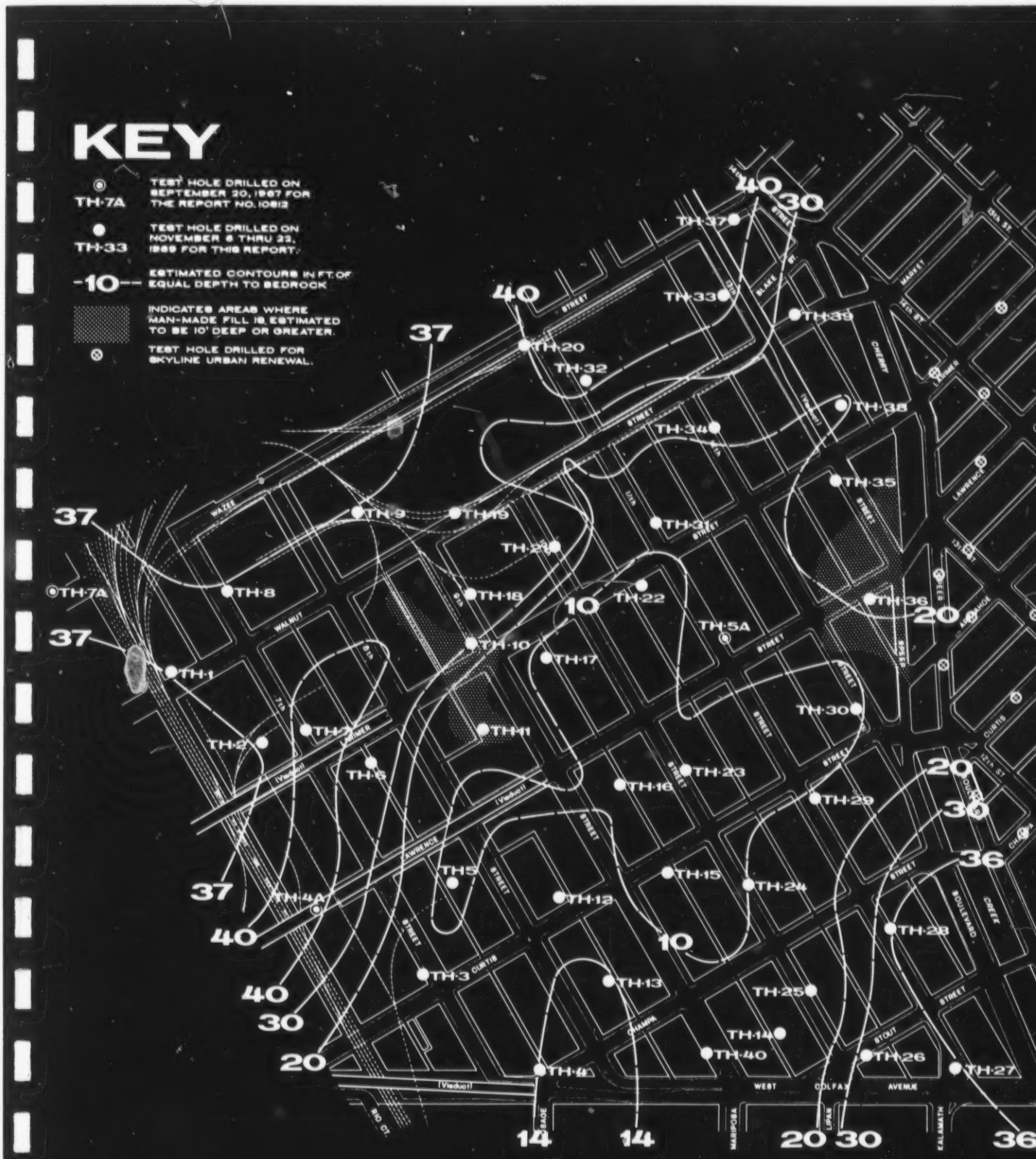
4/ If the soil engineer is to assume full responsibility for the four dation system, he should carefully inspect every footing to mak sure it is founded on the proper bearing soils.

Lightly Loaded Buildings — For lightly loaded buildings, one to tw stories high, spread footing foundations can usually be used. I this area, however, the existing buildings were usually constructe with basements. After the existing building is demolished, th existing basement area creates a problem in the placing of four dations. Therefore, careful consideration should be given to th design of the foundation system so all footings will be placed o natural soils. The soil engineers indicate that in many cases will be more economical to place the footings on compacted, con trolled, structural fill.

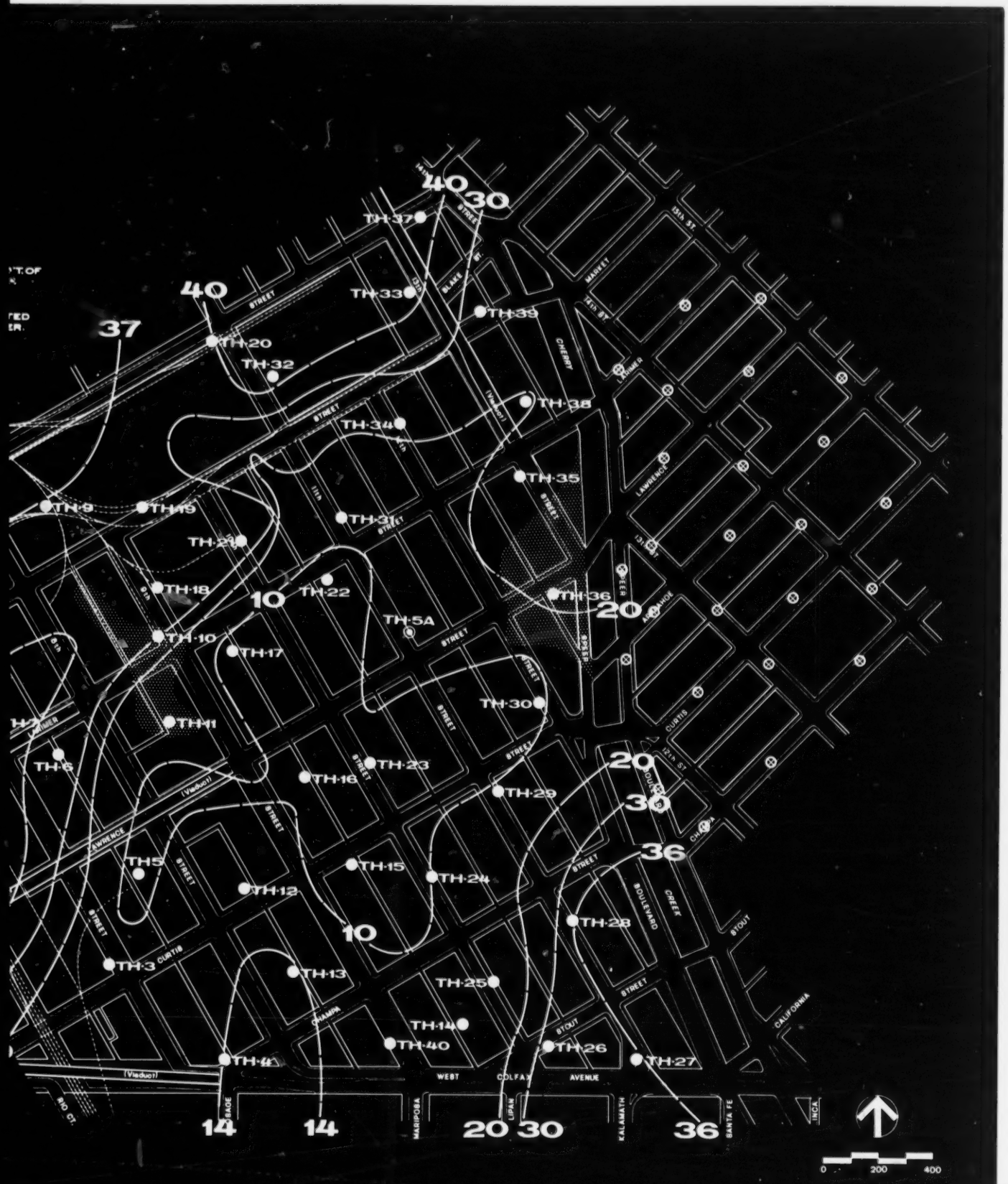
CONCLUSIONS

1/ High rise buildings in the area should be founded with pier drilled into bedrock.
2/ Intermediate height buildings can be founded with spread foo ings on the upper gravelly sands.
3/ Small buildings should be founded with spread footings eithe on compacted structural fill, or with spread footings on the na ural soils.
4/ No special subgrade treatment will be necessary if the widt and alignment of the new streets are approximately the sam as the existing streets.

It should be emphasized again that data contained in this sectio of the report are of a generally preliminary nature. Detailed con sideration of specific building sites or of actual foundation desig should be undertaken only after obtaining more definitive soil dat from a qualified soil engineering firm.



Soil Conditions


40
30
TH-37
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TH-33
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TH-19
TH-31
TH-21
TH-18
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TH-22
TH-5A
TH-36
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TH-10
TH-17
TH-30
TH-11
TH-6
TH-23
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TH-15
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TH-12
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TH-28
TH-3
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400

1S

100 Year Flood Plain

This section of the report presents a summary of information provided by Wright-McLaughlin Engineers whose work primarily included the definition of the flood plains resulting from the South Platte River and Cherry Creek as related to the Auraria Urban Renewal Project site. Wright-McLaughlin have based this report upon data obtained from recent studies conducted by the Corps of Engineers as well as from studies which they themselves have performed in the past as related to flood channels.

The definition of the flood plain of any stream must be related to a particular size flood having a specific frequency. In this regard Wright-McLaughlin believe it is appropriate to utilize the criteria developed by the Denver Regional Council of Governments as presented in the URBAN STORM DRAINAGE CRITERIA MANUAL. This manual, in general, conforms to the Federal flood policy as presented in A UNIFIED NATIONAL PROGRAM FOR MANAGING FLOOD LOSSES as sent to Congress on August 10, 1966 by President Johnson. Based upon generally accepted policy, the 100 year flood has been chosen for analysis. The 100 year flood is defined as the magnitude of flood having a 1% chance of occurring in any given year. The "standard project flood" is one which might have a frequency of once in 500 years or longer. The chances of this flood occurring are so remote that only minimal steps are usually taken to protect against possible damage resulting therefrom. In regard to the "standard project flood", Wright-McLaughlin suggest certain precautions might well be taken in the design of the facilities for the Auraria Higher Education Center. These precautions include the following:

1/ Discourage below grade computer center facilities, basement storage of valuable library or other materials, and placement of costly or irreplaceable goods below ground level without provisions being made with respect to flood-proofing.

2/ In the design of the structural systems for buildings at the Higher Education Center, the engineer should take into consideration uplift and additional pressures due to flooding from the standard project flood.

Wright-McLaughlin indicate in most development in the United States today, provisions are not generally made to protect for floods greater than the 100 year flood. They are of the opinion that such provisions could be made as a matter of cautious planning.

Urban storm drainage and flood control measurements must be evaluated from the standpoint of the drainage of the site itself as well as from the effect of flooding of the two major streams. In this instance, consideration must be given to disposition of the initial and major rainfall which occurs on the area itself and runs off as storm water during and immediately after precipitation occurs. Study of this condition would produce data regarding the type of storm sewer outfall and major drainage interior provisions which are needed to protect the proposed development of the Auraria Higher Education Center site.

SOUTH PLATTE RIVER

The drawing on Page 27 indicates the 100 year flood plain as it now exists. This flood plain generally concurs with the limit of the South Platte River flood which occurred in 1965. The Corps of Engineers indicates that, upon completion of Chatfield Dam, the 100 year flood plain should be completely removed from the Auraria site. If and when Mt. Carbon Dam on Bear Creek is completed, the floods on the South Platte River through Denver will be even further reduced.

Chatfield Dam is scheduled to become operative as a flood control structure no earlier than the summer of 1973. Actual completion will be dependent upon the funding made available for the project. On this basis, it is possible that the Auraria site could be subjected to flooding from the South Platte River for an indeterminate period of time. The depth of flooding relates to the topography of the site and the 100 year flood could vary from zero at the water edge to well over 10′ at the deepest point along Wazee at the northwest corner of the site.

Since it is presumed that the Auraria Higher Education Center will construct buildings prior to the completion of Chatfield Dam, several general possibilities should be considered related to the 100 year flood plain of the South Platte River. Most buildings could be sited in a manner which will put them either completely out of the flood plain of the South Platte River or at its edge where flooding will be shallow and can be controlled through grading and building design. If buildings must be sited in the flood plain, Wright-McLaughlin indicate it is possible to incorporate temporary flood-proofing measures into the building designs at a nominal cost. Generally, it would appear that facilities less subject to flood damage and costly repair such as surface parking lots and physical education fields should be placed in the flood plain in lieu of buildings. Finally, it is recommended that, as site planning for the Auraria Higher Education Center proceeds into more definitive stages, current data regarding the progress of Chatfield Dam be obtained. It is entirely possible the Dam will be completed prior to the completion of Auraria facilities, thus minimizing flooding problems related to the South Platte River.

CHERRY CREEK

Early work performed by the Corps of Engineers indicated that the 100 year flood plain on Cherry Creek would be contained in the river channel as it passes the Auraria site. Because of recent changes brought about by new flood data, primarily resulting from the 1965 experience in the Denver region, the Corps of Engineers is revising its concepts regarding potential flooding of Cherry Creek on a 100 year flood basis. Data made available to Wright-McLaughlin point toward the probability that, during the 100 year flood, Cherry Creek will overflow its banks into Auraria at Stout, Curtis, and Market Streets. The extent of this flooding is indicated on the drawing on Page 27. It is estimated that the depth of flood

waters would be such that flooding would be generally limited to shallow flows of 1' and less with most of the water flowing in the streets.

The Corps of Engineers has proposed several hydraulic modifications to the existing Cherry Creek Channel and Flood Control Works. The most important for Auraria would be the deepening and riprapping of the Cherry Creek Channel through the downtown area. This channel modification would also include the reinforcing of the existing channel walls where necessary. These corrections would increase the channel capacity in this area to a point where it would pass the 100 year flood depth and would totally eliminate the Cherry Creek flood plain from the Auraria site. Presently, however, the Corps of Engineers does not have a detailed plan or design for these improvements and apparently does not have any authorization to proceed with such improvements. The City of Denver recognizes the potential flood hazards along the lower reaches of Cherry Creek. Still, the City does not have firm plans for channel improvement work along Cherry Creek.

Wright-McLaughlin believe that improvements to the Cherry Creek Channel will probably not be constructed within the next five years but may be accomplished within the next ten year period. Because of this, they have made a series of recommendations for protection of Higher Education Center buildings from Cherry Creek flooding during the period prior to completion of channel improvements:

1/ The State should file a formal request to the "Urban Drainage and Flood Control District" to undertake Cherry Creek improvements at the earliest possible date. Copies of this request letter should be sent to the Corps of Engineers and to the City of Denver. Meanwhile, consideration should be given to the construction of a simple flood control barrier along the left bank of Cherry Creek.

2/ An early review of flood control planning by the "Urban Drainage and Flood Control District" should be made. Upon completion of that study, if it does not appear that construction of improvements to the Cherry Creek Channel and Flood Control Works are scheduled for the immediate future, prevention measures should be then undertaken by the State in cooperation with the District and the City of Denver. These measures would include the construction of flood control barriers along the left bank of Cherry Creek at the problem areas. Such barriers could consist of a decorative solid wall or raised walkways about 2' higher than the existing bank. These barriers should tie into the bridge railings.

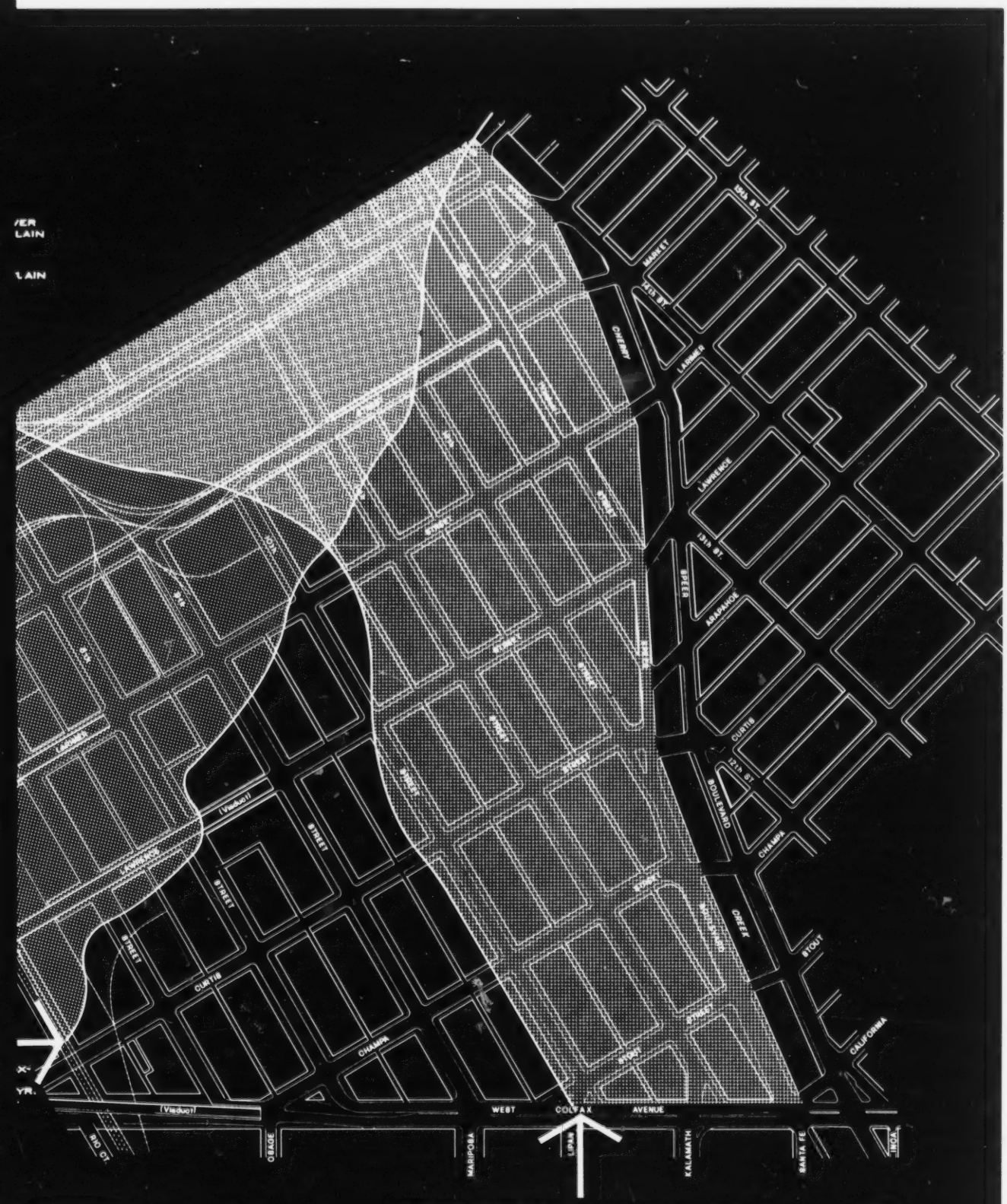
3/ In lieu of the barrier, the State might choose to construct buildings in a manner which would raise first floor levels to a point at least 2' above the road crown elevations. This action would probably be considered reasonable even without the Cherry Creek hazard because it would provide for storm drainage of site areas immediately around the buildings and overcome hazards considered normal to any site.

Further data in connection with the 100 year flood plain may be obtained by reference to the complete copy of the Wright-McLaughlin Engineers'report on file in the offices of the Colorado Commission on Higher Education.

KEY
SOUTH PLATTE RIVER
100 YEAR FLOOD PLAIN
CHERRY CREEK
100 YEAR FLOOD PLAIN
APPROXIMATE LIMITS OF PRESENT 100 YEAR FLOOD PLAIN FROM SOUTH PLATTE RIVER AND ALSO APPROXIMATE LIMIT OF 1965 SOUTH PLATTE RIVER FLOOD. UPON CONSTRUCTION OF CHATFIELD DAM, THE 100 YR. FLOOD FROM SOUTH PLATTE RIVER WILL BE CONTAINED ENTIRELY WITHIN ITS CHANNEL.
(Viaduct)
STREET
CURTIS
CHAMPA
WEST
COLFAX
LARIMER
MARIPOSA
OSAGE
LINCOLN

100 Year Flood Plain

PROBABLE EXTENT OF 100 YEAR
OVERTOPPING OF LEFT BANK AT
MARKET STREETS. FLOW WOULD
FOOT DEEP OR LESS AND WOULD
IN THE STREETS. ONCE WATER
BANK IT TENDS TO FLOW NORTH
RETURNING TO THE CHANNEL.



od Plain

PROBABLE EXTENT OF 100 YEAR FLOOD PLAIN WITH OVERTOPPING OF LEFT BANK AT STOUT, CURTIS, AND MARKET STREETS. FLOW WOULD GENERALLY BE ONE FOOT DEEP OR LESS AND WOULD BE CONCENTRATED IN THE STREETS. ONCE WATER OVERTOPS THE LEFT BANK IT TENDS TO FLOW NORTH-NORTHWEST WITHOUT RETURNING TO THE CHANNEL.

Primary Private Utility Lines

A number of primary private utility lines exist on the Auraria site. Included in these utilities are steam, gas, telephone, electrical power, telephone microwave, traffic signalization, Western Union, police and fire alarm signal circuits, and street lighting. The approximate location of these lines is indicated on the drawing cross page. In following paragraphs, information regarding these lines is presented and the feasibility of relocating them is also discussed. The numbers in the text relate to like numbers on the drawing.

1/ Steam — This line is the primary steam feeder from the Zuni plant to downtown Denver. It is a 14" line with pressure which varies from 50 PSIG to 275 PSIG depending upon the steam load. There is a possibility this line could deliver steam to the Auraria Higher Education Center facilities. Relocation of this line would be critical since it is the main feed to the entire uptown area of the central business district.

2/ Gas — Item 2 identifies a gas pressure regulator station located at approximately 1460 West 7th Street. This regulator station and building is the primary pressure regulator station for three primary gas mains which serve areas other than the Auraria Higher Education Center site. Relocation or shutdown of this station would be critical.

3/ Gas — Line 3 is a primary gas feeder. It is a 10" steel low-pressure main with approximately 3 PSIG operating pressure. This main can be lowered or relocated if necessary provided any required shutdowns are properly scheduled.

4/ Gas — Item 4 is a primary gas valve vault and regulator station which is located in the vicinity of the intersection of 7th Street and Walnut Street. This regulator is essential to the operation of the primary gas feeders. However, with proper scheduling it can be relocated if required. Lowering or relocation of the underground valve vault can be accomplished but it should be noted that scheduling problems and cost would be so substantial that every possible measure should be taken to overcome the need for such procedures.

5/ Gas — Line 5 is a primary gas feeder which is a 20" steel high-pressure main with approximately 150 PSIG operating pressure. This main can be lowered or relocated if necessary provided shutdowns are properly scheduled.

6/ Gas — Line 6 is a primary gas feeder. It is a 20" steel high-pressure main with approximately 150 PSIG operating pressure. This main can be lowered or relocated if necessary provided shutdowns are properly scheduled.

7/ Gas — Line 7 is a primary gas feeder which is a 24" cast iron low-pressure gas main with approximately 3 PSIG operating pressure. This main cannot be lowered or relocated without complete replacement. If it is necessary to lower or relocate this facility, a new steel main must be installed and shutdowns must be properly scheduled.

8/ Telephone — Telephone services shown are vital for the southwest, west, and northwest areas of the Metropolitan Denver Area. Disruption or relocation of these services would cause considerable customer inconvenience and necessitate redesign of certain long-distance circuits. Approximate cost of relocation of the company's major systems through the Auraria site is estimated to be $300,000.00. Therefore, planning considerations should be given to permitting these facilities to remain undisturbed.

9/ Electrical Power — This underground electrical power cable is a key public service company circuit which provides primary voltage electrical power to the downtown network system. It would be very costly to remove or relocate this facility.

10/ Telephone Microwave — This microwave beam is discussed in the next section of this report.

11/ Telephone Microwave — This microwave beam is discussed in the next section of this report.

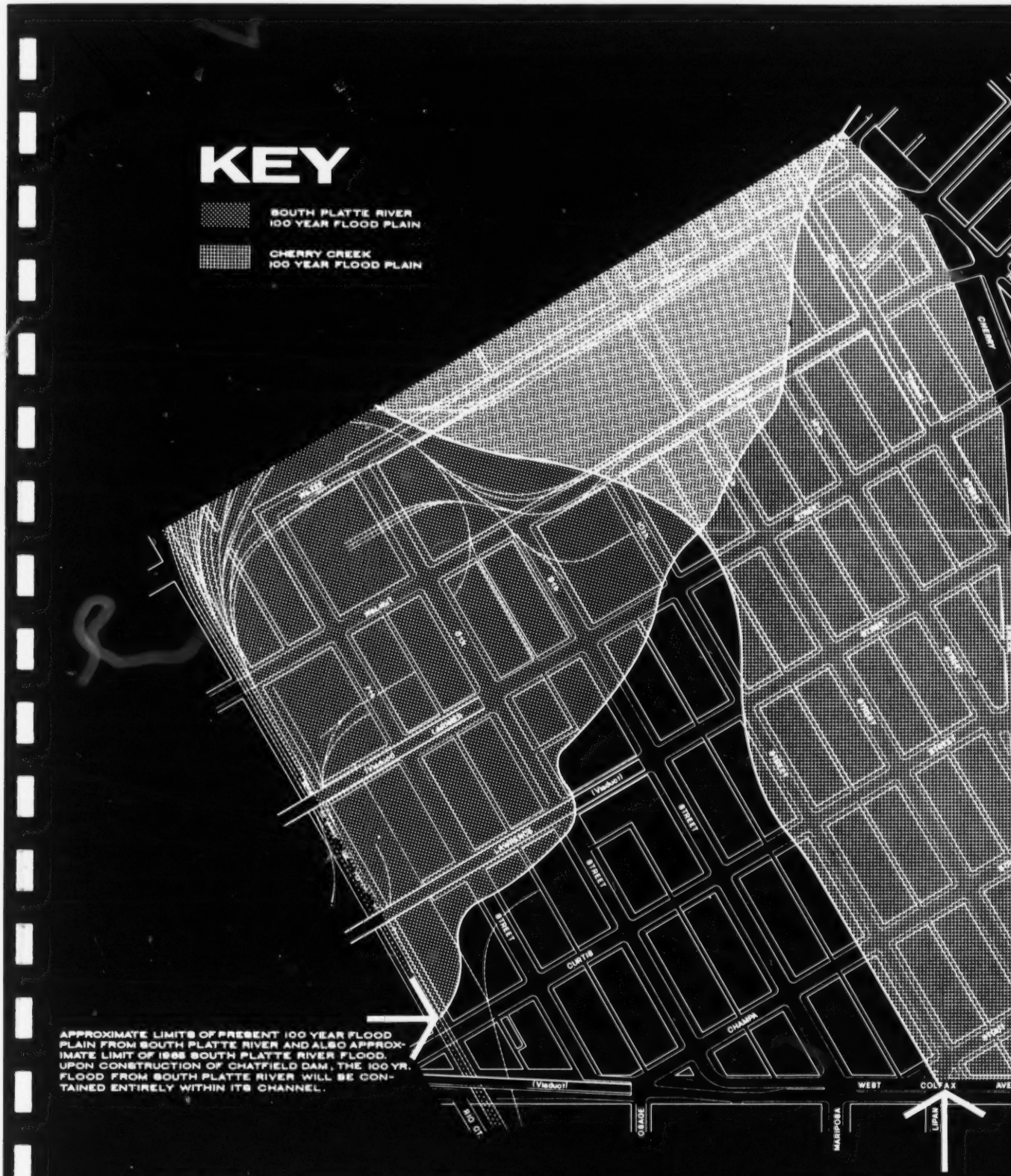
12/ Traffic Signals — This line relates to traffic signal control terminals and related control circuits which may be eliminated incrementally as streets are vacated in the development of facilities for the Auraria Higher Education Center. Terminals which will remain or will be relocated are dependent upon remaining street intersections and traffic/pedestrian control patterns. Future control equipment should be arranged to utilize adjacent leased telephone lines.

13/ Western Union — This portion of Western Union cables existing between Champa and Walnut Streets constitute proposed replacement of overhead lines. The final location of underground cables may be adjusted by the planners of the Auraria Higher Education Center in coordination with Western Union officials to suit area development plans. The final location may be predicated on such factors as spare duct space and availability of leasable conductors from the telephone company. Relocation costs could be significant.

14/ Police and Fire Alarm Signal Circuits — The present police and fire alarm circuits are not indicated on the drawing cross page because the cables occupy telephone company owned ducts for the principal runs. Circuits are available for extension to contemplated facilities of the Auraria Higher Education Center as they are constructed.

15/ Street Lighting — Street lighting is not indicated on the drawing cross page. All present street lights are served from overhead services from the power distribution system and will be incrementally removed as streets are abandoned.

Data presented above and on the drawing cross page are based upon information generated by Swanson-Rink & Associates. A complete copy of the Swanson-Rink report is on file in the offices of LKA.


KEY
SOUTH PLATTE RIVER
100 YEAR FLOOD PLAIN
CHERRY CREEK
100 YEAR FLOOD PLAIN
APPROXIMATE LIMITS OF PRESENT 100 YEAR FLOOD PLAIN FROM SOUTH PLATTE RIVER AND ALSO APPROXIMATE LIMIT OF 1965 SOUTH PLATTE RIVER FLOOD. UPON CONSTRUCTION OF CHATFIELD DAM, THE 100 YR. FLOOD FROM SOUTH PLATTE RIVER WILL BE CONTAINED ENTIRELY WITHIN ITS CHANNEL.
CHERRY
(Viaduct)
STREET
CURTIS
CHAMPA
WEST
COLFAX
BIG DT.
O'BADE
MARIPOSA
LIPAN

100 Year Flood Plain

PROBABLE EXTENT OF 100 YEAR FLOO
OVERTOPPING OF LEFT BANK AT STO
MARKET STREETS. FLOW WOULD GEN
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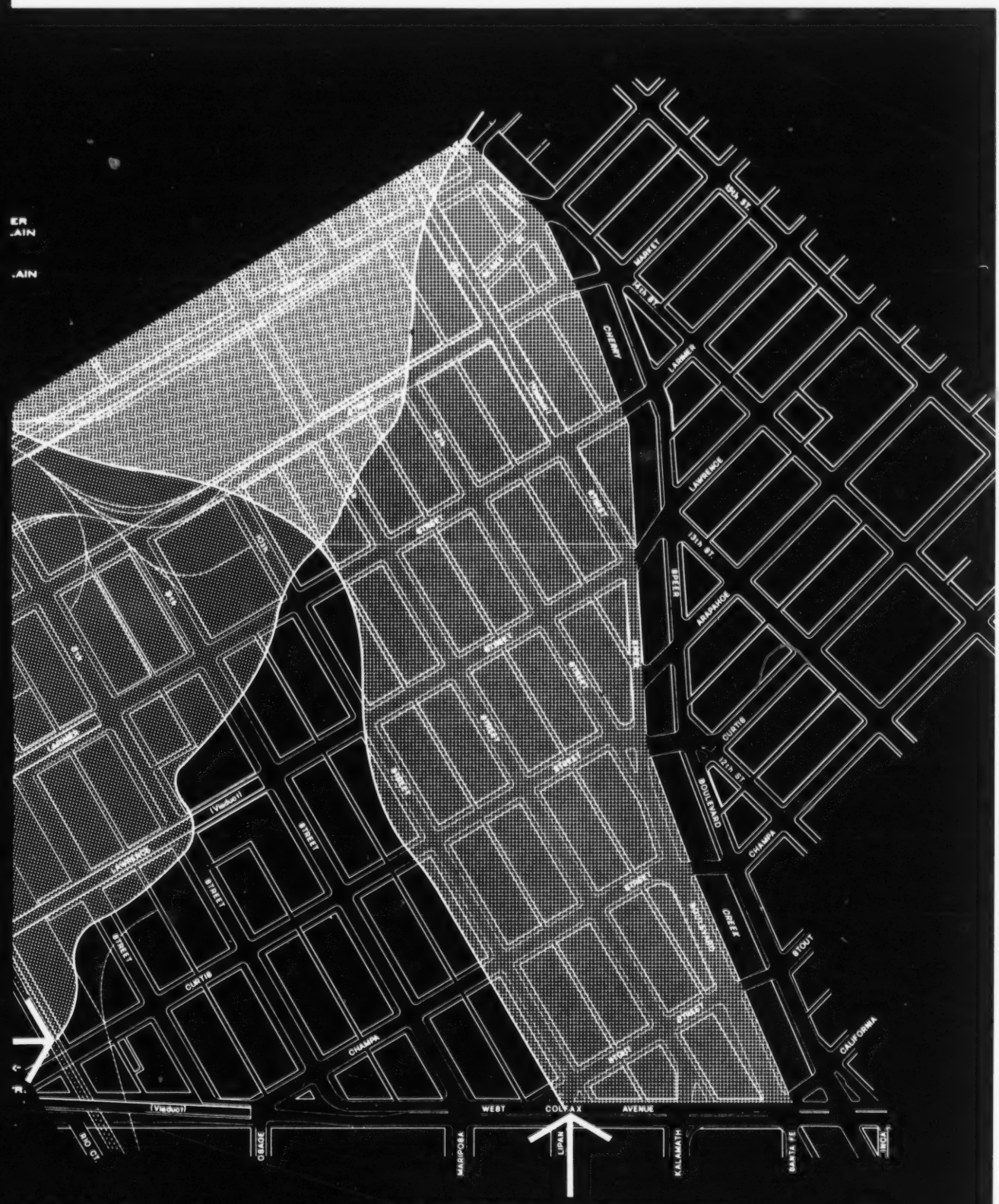


d Plain

PROBABLE EXTENT OF 100 YEAR FLOOD PLAIN WITH OVERTOPPING OF LEFT BANK AT STOUT, CURTIS, AND MARKET STREETS. FLOW WOULD GENERALLY BE ONE FOOT DEEP OR LESS AND WOULD BE CONCENTRATED IN THE STREETS. ONCE WATER OVERTOPS THE LEFT BANK IT TENDS TO FLOW NORTH-NORTHWEST WITHOUT RETURNING TO THE CHANNEL.

0 200 400

KEY

- P — 3 3C 350 M.C.M. 15KV Cables
- S — 4" Steam Line
- G 2" — Gas Pipe Size
- T-T-T — Telephone Conduit (No. of Ducts)
- M — Manhole
- M — Microwave Radio Beam
- WU-U — Underground Western Union Cables
- WU-A — Aerial Western Union Cables
- TS — TRAFFIC SIGNAL

NOTE: All utility lines are underground unless otherwise noted.

BLAKE ST.
MARKET
CHERRY
LARIMER
LAWRENCE
ARAPAHOE
CURTIS
BOULEVARD
CREEK
STOUT
CALIFORNIA
DOLFAX
AVENUE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
0
200
400

Radio Beam

Two microwave radio beams pass above the Auraria Urban Renewal Project site.

1/ The beam shown on the drawing cross page as Beam No. 1 is a Mountain Bell Telephone Company microwave radio beam extending from 931 14th Street to facilities on Table Mountain.

2/ Beam No. 2 is a Mountain Bell Telephone Company microwave radio beam extending from facilities at 931 14th Street to facilities at Martin Marietta Corporation.

The design of buildings at the Auraria Higher Education Center should be accomplished in a manner which will avoid blocking the paths of these microwave radio beams. In order to accomplish this, construction along the beams centerlines should be limited to a height of 220′ above present grade extending 50′ horizontally from each side of the centerline of the beam.

KEY
1
INDICATES MOUNTAIN BELL TELEPHONE COMPANY'S MICROWAVE RADIO BEAM BETWEEN THEIR 931 14TH STREET AND TABLE MOUNTAIN FACILITIES.
2
INDICATES MOUNTAIN BELL TELEPHONE COMPANY'S MICROWAVE RADIO BEAM BETWEEN THEIR 931 14TH STREET FACILITIES AND THEIR FACILITIES AT MARTIN-MARIETTA CORPORATION.
NOTE:
TO PREVENT BLOCKING OF THE PATHS OF THE BEAMS, CONSTRUCTION ALONG THE BEAM CENTERLINES SHOULD BE LIMITED TO 220 FEET ABOVE PRESENT GRADE AND 50 FEET HORIZONTALLY EACH SIDE OF CENTERLINE.
1
100 FT.
2
WAZEE
WALNUT
LARIMER
LAWRENCE
CURTIS
CHAMPA
(Viaduct)
WEST COLFAX
OSAGE
MARIPOSA
RIO CT.
BLAKE
CHERRY
STREET

100 FT.
100 FT.
2
0
200
400
WEST COLFAX AVENUE
LAWRENCE
CURTIS
CHAMPA
STOUT
CALIFORNIA
SPEER
ARAPAHOE
LARIMER
MARKET
BLAKE ST.
BOULEVARD
CREEK
(Viaduct)
O'BRIDE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA

Water Mains

The existing water distribution system on the Auraria Urban Renewal Project site is diagrammed on the drawing cross page. This system is composed of water mains which serve the Auraria site as well as mains which pass through the Auraria site and serve areas beyond its boundaries. Some of the mains indicated on the drawing may be removed as required for construction of the Auraria Higher Education Center. Others should not be removed or abandoned — although they might be relocated — for reasons described in the following text. The key shown on the drawing indicates water mains sizes as well as identification of mains which are candidates for removal and/or relocation.

The following general conditions should be evaluated as facilities for the Auraria Higher Education Center are planned:

1/ The material, age, and condition of existing water mains on the site are assumed to be satisfactory for continued use. This assumption should be re-evaluated as decisions are reached regarding mains which are to remain and plant charges, if any, for mains which might be abandoned. Salvage of abandoned mains should be considered.

2/ Any main proposed for abandonment must be left in service until the area which it serves (including feed and circulation services) has been completely acquired and vacated or alternative equivalent service has been provided for remaining properties. Individual services may be abandoned as the building or area being served is removed from useful functions.

3/ If streets and alleys are closed, water department regulations require exclusive easements for any mains remaining or new mains installed as part of the Denver water system. It is possible this requirement might be relaxed through appropriate negotiation processes.

4/ Auraria Higher Education Center facilities could possibly be served by parts of the water distribution system which might otherwise be abandoned. As facility planning progresses, this possibility should be carefully considered.

5/ Some expense will be incurred in abandoning mains and eliminating residual dead ends. This expense should be of a minor nature.

6/ A charge will be made by the Denver Water Department for plant value of the distribution system abandoned. It is assumed this expense will be paid by the State.

Following items briefly describe each of the water lines which serve site areas where service must be maintained. These water lines must either remain or be relocated. They are identified on the drawing by letters and described in the text below:

A/ The water main on Sixth Street from Wazee north for which no size is shown. This main serves property outside the Auraria site where service must be maintained.

B/ The water main on vacated Wazee Street west of Sixth Street to 7th Street which is a 12" main. This main serves property outside Auraria where service must be maintained. It also provides circulation for the main described in Paragraph A above.

C/ The water main on 7th Street from Walnut north which is an 18" main. This main is a feeder for an area outside Auraria where service must be maintained. It also provides circulation for the mains described in Paragraphs A and B above.

D/ The 6" water main on 11th Street from Walnut north. This main serves property outside Auraria where service must be maintained.

E/ The 12" water main on 13th Street from Walnut north. This main serves property outside Auraria where service must be maintained.

F/ The water main on Walnut Street from west of Sixth Street to east of Speer Boulevard which is a 36" main. This water main is a principal feeder for downtown Denver. If it is relocated all mains which presently pass through the Auraria site and provide service outside of the site must be reconnected to the feeder in the new location to provide circulation and supply. Relocating this main would cost approximately $180,000.00.

G/ The water main on Stout Street from south of Colfax Avenue to east of Speer Boulevard. This 24" main provides feed and circulation between parts of downtown Denver outside the Auraria site where service must be maintained. Relocation cost is estimated to be approximately $70,000.00.

H/ The water main on Colfax Avenue from west of Osage to the intersection between Osage and Colfax. This 6" main serves property outside the Auraria site where service must be maintained.

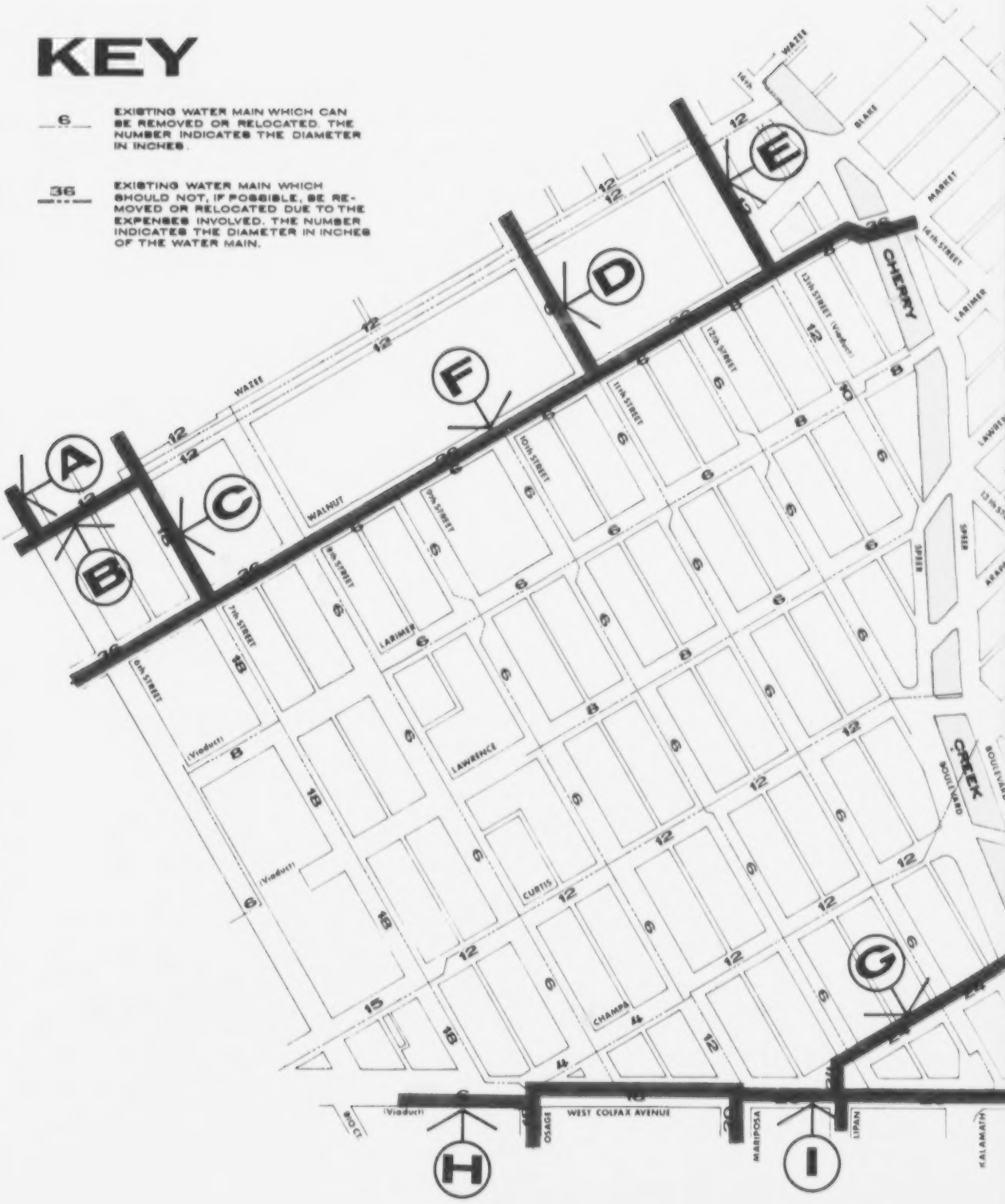
I/ The water main on Colfax from Osage to east of Speer which varies in size from 18" to 24" and all of its connections to the south must remain. This main provides feed and circulation to an area outside the Auraria site where service must be maintained.

The data contained above as well as that on the drawing cross page are based upon information generated by Ketchum, Konkel, Barrett, Nickel, Austin — Consulting Engineers.

KEY

6 — EXISTING WATER MAIN WHICH CAN BE REMOVED OR RELOCATED. THE NUMBER INDICATES THE DIAMETER IN INCHES.

36 - - - EXISTING WATER MAIN WHICH SHOULD NOT, IF POSSIBLE, BE REMOVED OR RELOCATED DUE TO THE EXPENSES INVOLVED. THE NUMBER INDICATES THE DIAMETER IN INCHES OF THE WATER MAIN.



WATER
BLAKE
MARKET
15th STREET
14th STREET
CHERRY
LARIMER
LAWRENCE
13th STREET
SPEER
ARAPAHOE
CURTIS
CREEK
BOULEVARD
CHAMPA
STOUT
CALIFORNIA
INCA
SANTA FE
KALAMATH
LIPAN
MARIPOSA
OSAGE
WEST COLFAX AVENUE
(Viaduct)
12th STREET
11th STREET
10th STREET
9th STREET
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Sanitary Sewers

The drawing cross page indicates the existing sanitary sewer system on the Auraria Urban Renewal project site. This system is made up of sewers which serve facilities on this site as well as those which pass through the site and those which are located within the site boundaries but which serve areas outside. The key on the drawing indicates the size of the sewer and whether it may be relocated or removed entirely.

The following general conditions should be evaluated as the planning of facilities at the Auraria Higher Education Center progresses:

1/ The material, age, and condition of existing sewers on the Auraria Urban Renewal Project site is assumed to be satisfactory for continued use except for the 28" x 42" line which is known to be in a deteriorated condition. This assumption should be re-evaluated as decisions are reached during detailed planning phases.

2/ It is required that any sewer proposed to be abandoned must remain in service until the area it drains has been completely acquired and vacated or until alternative equivalent service has been provided for property remaining. Individual services may be abandoned as the buildings being served are demolished.

3/ Existing sewers which are abandoned should be left in the ground. The advisability of filling the abandoned system with grout or sand to prevent future settlement should be considered.

4/ Auraria facilities could probably be served by parts of the existing sewer system which might otherwise be abandoned. As planning progresses, this possibility should be carefully considered.

5/ Requirements for easements for sewers which remain in vacated streets and alleys should be investigated as planning progresses.

6/ It is assumed that no charge will be made for the plant value of any sewer which is abandoned.

The following text briefly describes each of the sewers which serve areas where service must be maintained. These portions of the sanitary sewer system may be relocated but may not be removed. They are shown on the drawing cross page and keyed to the text below:

A/ The sanitary sewer on Wazee Street from west of Sixth Stree to east of 11th Street and all sewers draining to this line fron the northwest. This sanitary sewer is a trunk collector whic picks up sewage from an area outside the Auraria site wher service must be maintained.

B/ The sanitary sewer on Wazee Street from west of 13th Stree to the intersection of 13th Street and Wazee Street and th sewer draining into this from the northwest. This 12" sanitar sewer picks up sewage from an area outside the Auraria sit where service must be maintained.

C/ The sanitary sewer on 11th Street extending from south of Col fax to north of Wazee. This 28" x 42" sanitary sewer is a mai outfall sewer passing through Auraria from other areas wher service must be maintained. The sewer was constructed of bric near the turn of the century and is overloaded with presen flows. The line is in poor condition and any major constructio near it could cause rupture and major damage. Because of this and in order to permit greater flexibility in the design of th component buildings, it is considered necessary to relocate an rebuild this sewer. It is possible the cost for the accomplish ment of the reconstruction and relocation project may be share by the State and City.

D/ The sanitary sewer on Speer Boulevard running from a point south of Colfax to 13th Street; thence, north on 13th Street t a point north of Wazee. This is a main outfall sewer passing through Auraria from an area outside the site to which service must be maintained.

E/ The sanitary sewer from Speer Boulevard and Lawrence Street to 13th Street; thence, extending on 13th Street to Larimer. This is a trunk collector sewer from an area outside the Auraria site to which service must be maintained.

F/ The sanitary sewer extending from the intersection of Osage and Colfax must be maintained through the Auraria site although it may be relocated if necessary.

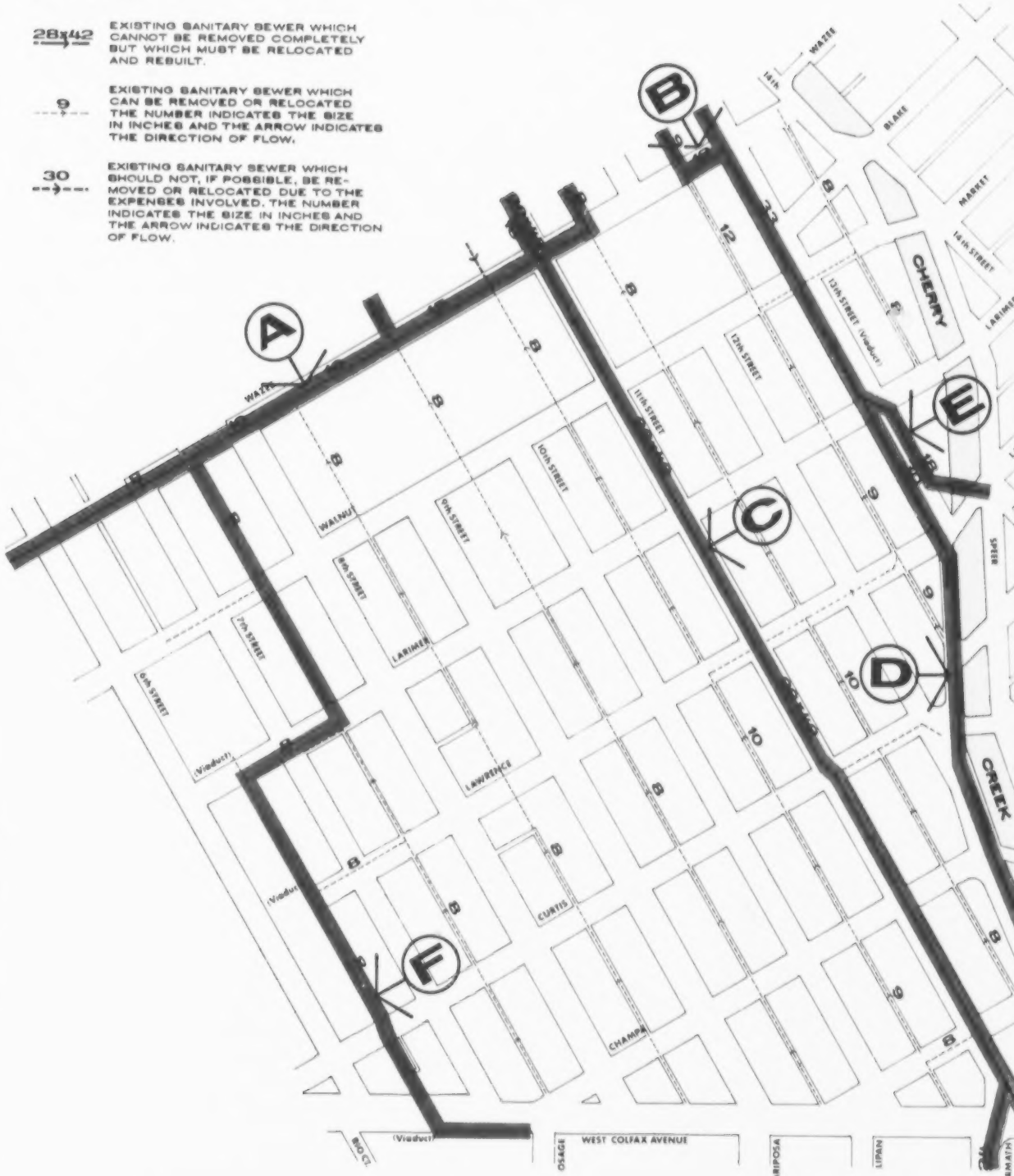
Data presented on this page and the drawing cross page are based upon information generated by Ketchum, Konkel, Barrett, Nickel, Austin — Consulting Engineers.

KEY

28x42 — EXISTING SANITARY SEWER WHICH CANNOT BE REMOVED COMPLETELY BUT WHICH MUST BE RELOCATED AND REBUILT.

9 — EXISTING SANITARY SEWER WHICH CAN BE REMOVED OR RELOCATED THE NUMBER INDICATES THE SIZE IN INCHES AND THE ARROW INDICATES THE DIRECTION OF FLOW.

30 — EXISTING SANITARY SEWER WHICH SHOULD NOT, IF POSSIBLE, BE REMOVED OR RELOCATED DUE TO THE EXPENSES INVOLVED. THE NUMBER INDICATES THE SIZE IN INCHES AND THE ARROW INDICATES THE DIRECTION OF FLOW.



B
C
D
E
F
WAZEE
14th
BLAKE
15th STREET
MARKET
14th STREET
CHERRY
13th STREET (Viaduct)
LARIMER
12th STREET
11th STREET
10th STREET
9th STREET
LAWRENCE
13th STREET
SPEER
ARAPAHOE
CURTIS
CREEK
BOULEVARD
CHAMPA
STOUT
CALIFORNIA
INCA
SANTA FE
KALAMATH
MARIPOSA
LIPAN
OSAGE
WEST COLFAX AVENUE
(Viaduct)
0
200
400

Storm Sewers

Every intersection within the Auraria site is presently served by the existing storm sewer system. While this system is old judging by similar conditions within the Skyline Urban Renewal project, it should be in relatively good condition and structurally adequate to remain in service on the Auraria site where its present location is properly related to the street system designed for the Higher Education Center.

An analysis was made of the existing system by Wright-McLaughlin Engineers to determine its capacity with reference to tributary inflow into the Auraria site and storm runoff generated within the site itself. The results of this investigation, while very preliminary in nature, indicate that the system is generally adequate to convey the five year frequency storm runoff throughout the project area. This analysis was based upon the assumption that on-site detention, including roof ponding, would be practiced within the boundaries of the Higher Education Center site in the same manner as presently conceived for the Skyline Urban Renewal Project. If the concept of on-site detention is not utilized, the existing storm sewer system cannot be considered adequate for even the two year frequency storm runoff.

The concept of on-site detention, which can significantly reduce the required storm sewer sizes for an area, simply refers to the practice of retaining water where it falls for a short period of time while releasing it at a controlled rate. Actually, many areas inadvertently provide on-site detention due to undersized inlets, poor grading which results in depressions filled with water, and sags in roofs which cannot be drained immediately by the roof drains. To design for the benefits of on-site detention, it is necessary to forecast the rate of discharge from areas. Within the Skyline Urban Renewal Project area, the allowable discharge or runoff rates are computed as follows:

Roof top areas — ½" per hour
Parking lot and Plaza areas — 1" per hour

These rates of controlled runoff can be realized with little or no additional cost associated with the construction of buildings or parking lot/plaza areas. Actually, if the Architect and drainage engineer work closely, a savings in building and site development cost can often be realized. For developments such as the Higher Education Center complex at Auraria, the utilization of grass drainage swales, small park-like depressed areas which would function as storage pools during high runoff — and large water storage roof areas can be utilized to significantly reduce the necessary storm sewer sizes for the area.

KEY

→12 EXISTING STORM SEWER WHICH CAN BE REMOVED OR RELOCATED. THE NUMBER INDICATES THE DIAMETER IN INCHES AND THE ARROW INDICATES THE DIRECTION OF FLOW.

2x45 → EXISTING STORM SEWER WHICH SHOULD NOT, IF POSSIBLE, BE REMOVED OR RELOCATED DUE TO THE EXPENSES INVOLVED. THE "2" INDICATES THE NUMBER OF LINES, THE "45" INDICATES THE DIAMETER IN INCHES OF EACH LINE, AND THE ARROW INDICATES THE DIRECTION OF FLOW.

WATER
14th
BLAKE
15th STREET
MARKET
14th STREET
CHERRY
LARIMER
13th STREET (Viaduct)
12th STREET
11th STREET
10th STREET
9th STREET
LAWRENCE
13th STREET
SPEER
SPEER
ARAPAHOE
CURTIS
CREEK
BOULEVARD
BOULEVARD
CHAMPA
STOUT
CALIFORNIA
LARIMER
LAWRENCE
CURTIS
CHAMPA
(Viaduct)
OSAGE
WEST COLFAX AVENUE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
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200
400

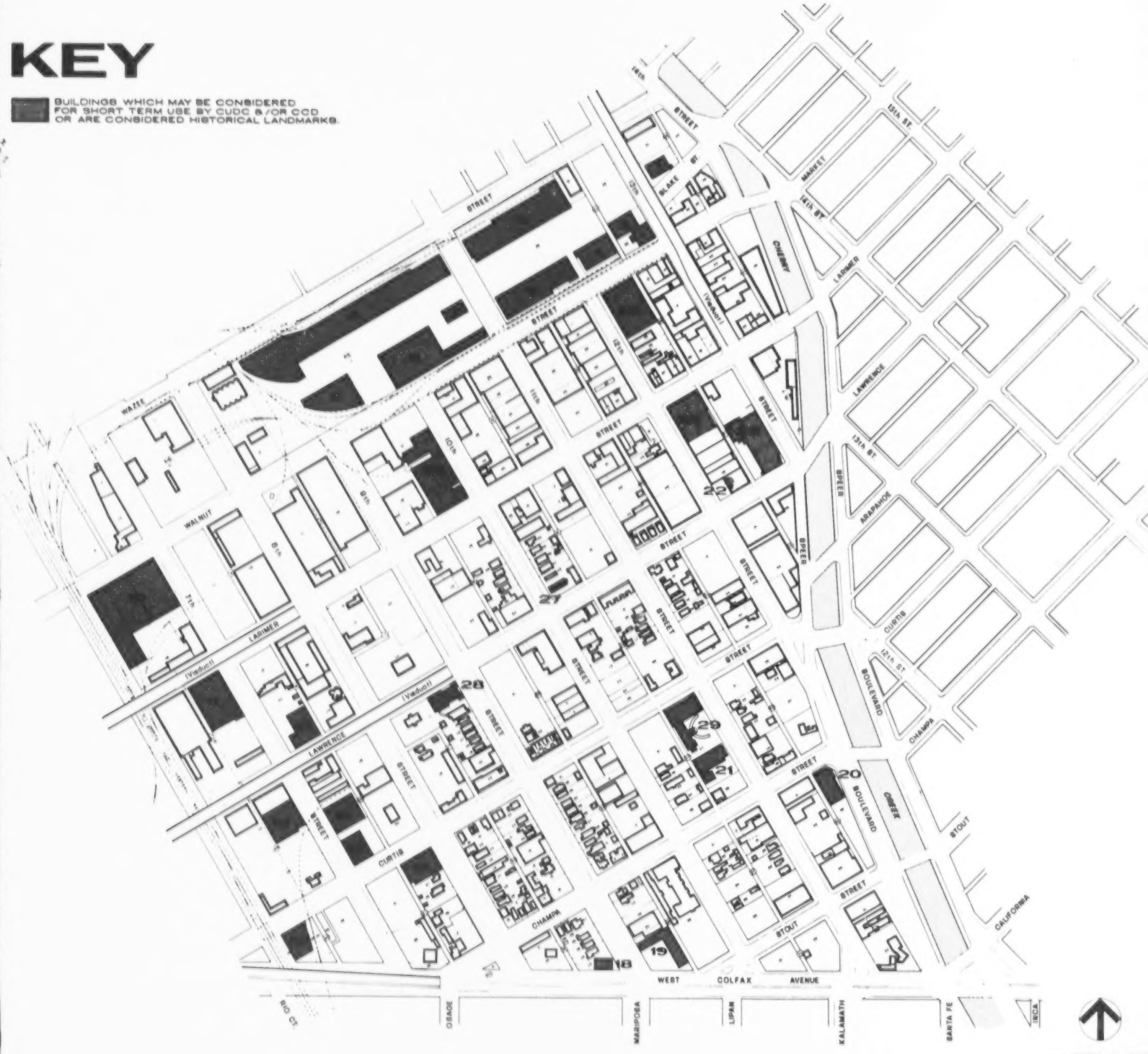
Present Buildings

An investigation of the existing buildings on the Auraria Urban Renewal Project site revealed that some 25 major buildings, in addition to the historical landmarks, are in fair to good condition. The possibility exists that some of these buildings might lend themselves to short or medium term use on an interim basis as facilities for the Higher Education Center. The chart below presents the general data collected from a visual inspection of the exteriors of the buildings which seem to justify consideration for interim use. Building numbers in the table correspond wth those which occur on the drawing cross page. It should be noted that, if an in-depth study were conducted, it is possible several additional smaller buildings which exist on the site and are in fair to good condition might also become candidates for consideration as interim facilities.

NO	COMPANY USING BUILDING	PRESENT USE	NO STORIES	TOTAL AREA IN S F	BUILDING CONDITION	POSSIBLE EDUCATIONAL VALUE	REQUIRED REMODELING TO REALIZE THIS VALUE
1	CITY OF DENVER	FIRE STATION	2	8.800	GOOD	CONTINUED USE OFFICES	NONE CEILINGS, PARTITIONS, LIGHTING
2		WAREHOUSE OFFICES	(1 2 (1	40.000 8.000	GOOD GOOD	CLEAN SHOPS OFFICES	LIGHTING, HEATING TOILETS PARTITION CHANGES
3	CREAGER MERC. CO	WAREHOUSE OFFICE	1	5.000 1.000	GOOD GOOD	AUTO SHOP, MISC. SHOPS & LABS FACULTY OFF	HEATING, LIGHTING, VENTILATION, PLUMBING FOR LABS & TOILETS, CEILINGS IN LAB PARTITIONS
4	SUNKIST GROWERS, INC. SOLID CARBONIC, INC	OFFICES WAREHOUSE	2(1 2(1	10.800 10.800	GOOD GOOD	OFFICES LABS	PARTITION CHANGES HEATING, LIGHTING, PARTITIONS, VENTILATION, PLUMBING FOR LABS & TOILETS – CEILINGS
5	DENVER CONTRACT CO	WAREHOUSE OFFICES	(1 2 (1	27.000 18.000	GOOD GOOD	CLEAN SHOPS FACULTY OFF	HEATING, LIGHTING, TOILET FACILITIES VERY LITTLE
6	DENVER MARKET & PRODUCE McCOMBS REFRIGERATION	WAREHOUSE 2 OFFICES	(1 + bmt (1	91.200 21.000	GOOD GOOD	AUTO SHOP, SHT. METAL SHOP, LABS & CLASSROOMS OFFICES	HEATING, LIGHTING, VENTILATION, PLUMBING FOR LABS & TOILET FACILITIES, CEILINGS, PARTITIONS PARTITION CHANGES
7	OLD NO. 7 RESTAURANT DENVER CONTRACT CO	RESTAURANT OFFICES	2(1 2(1	4.000 4.000	GOOD GOOD	STUDENT FAC OFFICES	VERY LITTLE VERY LITTLE
8	GRAYBAR ELECTRIC CO	OFFICES WAREHOUSE	1 1	6.200 30.800	GOOD GOOD	CLASSROOMS, LABS, CLEAN SHOPS	PARTITIONS, PLUMBING, VENTILATION, PARTITIONS, HEATING, LIGHTING FOR LABS, TOILET FACILITIES
9	C & C DISTRIBUTING	WAREHOUSE OFFICES	(1 2 (1	60.000 5.000	GOOD GOOD	SHOPS, NO AUTOS FACULTY OFF	HEATING, LIGHTING, TOILET FACILITIES PARTITION CHANGES
10	CHEMICAL SALES CO	WAREHOUSE	1	56.000	GOOD	SHOPS, LABS, CLASSROOMS	HEATING, LIGHTING, PLUMBING, VENTILATION, PARTITIONS, CEILINGS IN CLASSROOMS & LABS, TOILET FACILITIES
11	FOX SUPPLY CO	WAREHOUSE OFFICE DISPLAY	1 1	16.200 7.000	GOOD GOOD	LABS, CLASSROOMS, CLEAN SHOPS FACULTY OFF	LIGHTING, PLUMBING, CEILINGS, HEATING, VENTILATION, PARTITIONS, TOILET FACILITIES, PARTITION CHANGES
12	METROPOLITAN GLASS CO	OFFICE SHOP	1 1	1.000 9.600	GOOD GOOD	FACULTY OFF AUTO SHOP, MISC. SHOPS	NONE PARTITIONS
13	GUMP GLASS OLD SECTION NOT CONSIDERED BECAUSE OF BAD CONDITION OF BUILDING	OFFICE DISPLAY SHOP	1 1	3.800 12.000	GOOD GOOD	FACULTY OFF LABS – CLASSROOMS	PARTITION CHANGES, LIGHTING, CEILINGS, LIGHTING, HEATING, VENTILATION, PLUMBING FOR LABS AND TOILET FACILITIES
14		SHOP	1	12.000	FAIR	AUTO SHOP & MISC. SHOPS	VERY LITTLE – CONSIDERED FOR EXPANSION SPACE
15	SERVICE SUPPLY CO	OFFICES	1	8.000	FAIR	OFFICES, CLASSROOMS	LIGHTING – PARTITION CHANGES
16		WAREHOUSE	1	8.500	GOOD	AUTO SHOP, MISC. SHOPS	HEATING, VENTILATION, TOILET FACILITIES, LIGHTING
17		OFFICES	1	11.800	GOOD	OFFICES	VERY LITTLE
18	CITY OF DENVER	FIRE STATION	2	5.200	FAIR	CONTINUED USE OFFICES	NONE CEILINGS & LIGHTING IN TRUCK STALL AREA
19	GENERAL TIRE SERVICE	TIRE SERVICE DISPLAY & OFF	1 1	5.500 2.200	GOOD GOOD	AUTO MECHANICS OR BODY SHOP OFFICES OR LABS	NONE PARTITIONS, PLUMBING FOR LABS
20				7.200	FAIR		
21	ST. ELIZABETH'S SCHOOL	NURSING SCHOOL	3	24.600	FAIR	CLASSROOMS	NONE FOR SHORT TERM USE
22	THE HUNTER CO	WAREHOUSE	2 + bmt	14.400	GOOD	LABS, SHOPS	PLUMBING, VENTILATION, CEILINGS & LIGHTING, SECOND FLOOR & BASEMENT
23	CARLSON FRINK DAIRY	OFFICES MILK PROCESS	2 1	14.000 5.500	GOOD GOOD	OFFICE LAB	VERY LITTLE CEILINGS, LIGHTING
24	SALVATION ARMY	RETAIL STORE ON FIRST FLR STORAGE ON SECOND & THD	3	24.000	FAIR	CLASSROOMS	CEILINGS, LIGHTING, HEATING, VENTILATION, TOILET FACILITIES, PARTITIONS
25	NELSON DISTRIBUTING	WAREHOUSE	2	43.200	FAIR	CLASSROOM, LABS, VOCATIONAL SHOPS	CEILINGS, LIGHTING, PLUMBING, VENTILATION, TOILET FACILITIES, PARTITIONS
26	TIVOLI BREWERY	PROPOSED HISTORICAL LANDMARK					
27	EMMANUEL CHAPEL	HISTORICAL LANDMARK					
28	ST. CAJETAN'S CHURCH	HISTORICAL LANDMARK					
29	ST. ELIZABETH'S CHURCH	PROPOSED HISTORICAL LANDMARK					

KEY

BUILDINGS WHICH MAY BE CONSIDERED FOR SHORT TERM USE BY CUDC &/OR CCD OR ARE CONSIDERED HISTORICAL LANDMARKS.



Historical Landmarks

Within the boundaries of the Auraria Urban Renewal Project, three properties have been designated as historical landmarks — St. Elizabeth's Church, Emmanuel Chapel, and St. Cajetan's Church. These properties are identified on the drawing on Page 24. The Tivoli Brewery has not been designated as a landmark but is considered by many to have special architectural and historical significance. For that reason, it is also designated on the historical landmarks drawing. Each of these properties is described below.

ST. ELIZABETH'S CHURCH

St. Elizabeth's Church has been designated as a historical landmark by the City and County of Denver and has also been recognized as a National landmark through its inclusion in the National Register. The church is situated on Lots 4 through 6 inclusive, Block 29, West Denver, together with all related improvements, also known as 1060 11th Street, in the City and County of Denver. The following data pertain to St. Elizabeth's Church:

Original Owner	Franciscan Order of Friars Minor of Province of Most Holy Name
Original Use	Church
Present Owner	Franciscan Order of Friars Minor of Province of Most Holy Name
Present Use	Church
Street Number	1060 11th Street
Wall Construction	Cut Stone
Number of Stories	2 (average height is 43')
Date or Period	1898
Style	Gothic with a few Romanesque motifs
Architect	Brother Adrian, O.F.M.
Builder	Father Francis Koch and German parishioners
Exterior Condition	Excellent
Interior Condition	Good

Briefly, the history of St. Elizabeth's Church covers the following events. In 1878, Bishop Machebeuf was petitioned by German-speaking Catholic families to create a parish. The request was granted, land was purchased, and a church was built on the corner of 11th and Curtis Streets. This parish, known as St. Elizabeth's, was the second Catholic parish to be established in Denver. It is the oldest parish on Denver's westside in point of service. In 1887, Father Francis Koch, O.S.F. was appointed the first Franciscan rector of St. Elizabeth's. Because the original church became too small, it was torn down in 1890. The new church built in German-Gothic style was consecrated in June, 1902. It was de-

signed by Brother Adrian, O.F.M. of the Sacred Heart Province. It measures 132′ x 69′ and its spire reaches a height of 162′. The church was constructed of lava stone quarried at Castle Rock. Outstanding interior features of the church are the carved wooden statues on the front alter which were brought to Denver from Germany, paintings over the alter, and painted /stained glass windows which were given by early parishioners.

EMMANUEL SHEARITH ISRAEL CHAPEL

Emmanuel Shearith Israel Chapel has been designated as a historical landmark by the City and County of Denver and, like St. Elizabeth's, is recognized as being a National landmark through its inclusion in the National Register. This little building is located on the west 102.7′ of Lot 12, Block 31, West Denver, with all improvements situated and located thereon, also known as 1201 10th Street, Denver, Colorado.

Significant data regarding Emmanuel Chapel include the following:

Original Owner	Bishop John F. Spalding
Original Use	Episcopal Church
Present Owner	Wolfgang Pogzeba
Present Use	Artist's Studio (as late as May, 1967)
Street Number	1201 10th Street
Wall Construction	Cut Stone
Number of Stories	One with interior balcony
Date or Period	1876
Style	Romanesque/Gothic (Transitional)
Architect	Unknown
Builder	Unknown
Exterior Condition	Good
Interior Condition	Good

This small stone building is Denver's earliest church that still remains standing. The land upon which it rests was purchased by John F. Spalding, Bishop of the Protestant Episcopal Church in Colorado, in the year 1874. Its location is significant in that the church was constructed on the site of the very first Sunday School in the Rocky Mountain Region, a "Union Sunday School" which was organized by Col. Lewis N. Tappan in 1859 and embraced all denominations. Construction on Emmanuel Chapel began in 1876 and the church was consecrated on September 14, 1877 as "Emmanuel Episcopal Chapel." For years it retained the distinction of being the only Church in a ward containing a population of more than 2,000. In the '80's it was connected with the All Saints Mission of North Denver. Commerce made its way into the area in the 1890's and the Episcopalian population was replaced by others of different religious backgrounds — thus, Emmanuel Chapel began a period in which its use changed from time to time.

In 1903, the congregation of Shearith Israel bought the building and converted it into a Synagogue. They formed a Talmud Torah

in 1906, teaching Hebrew to large groups of Jewish boys in West Denver. Services were held at Shearith Israel Synagogue until 1958 when the diminishing membership forced its closing.

The exterior heavy stone wall construction and narrow window openings give the church an appearance of a mixed Romanesque and Gothic style. The bright interior (painted white by the present owner) has unadorned plaster walls, rounded plaster ceiling, and wood trim. Originally there were rose windows at both ends of the building. In 1963, the church was converted into an artist's studio.

ST. CAJETAN'S CHURCH

St. Cajetan's Church became a Denver landmark in 1970, due more to its social significance than to architectural merit.

Significant data regarding St. Cajetan's Church include the following:

Original Owner	Catholic Church
Original Use	Church
Present Owner	Catholic Church
Present Use	Church
Street Number	9th and Lawrence Streets
Wall Construction	Brick and stucco
Number of Stories	One
Date or Period	1926
Style	Spanish
Architect	Unknown
Builder	F. J. Kirchoft Construction Co.
Exterior Condition	Good
Interior Condition	Fair

St. Cajaetan's Church was erected in 1926 on land donated to the Catholic Church by John K. Mullen, a prominent Denver pioneer, who made a fortune in the milling and grain business Mullen was the founder of the Hungarian Mills and the leader in organizing the Colorado Milling and Elevator Company.

The site of St. Cajetan's was originally the old Mullen homestead and the area was then considered Denver's finest residential district. The Mullens lived at this location until 1889 or 1890 when they moved to 896 Pennsylvania Avenue. In 1923, Mullen gave the land to the Catholic Church and a parish comprised predominately of Spanish-American people was organized in 1925. The church was first conceived as a basement structure because of the lack of building funds. Mr. Mullen later donated an additional $50,000 to the $20,000 raised by the parish and the structure was completed. His wife, Catherine, died before the church was completed, and it was given as a memorial to her at the time of dedication.

TIVOLI BREWERY

In 1970, Tivoli Brewery was proposed as a landmark in the City and County of Denver. The City Council declined to follow the recommendation of the Landmark Commission thus, the building has

not been formally named as a historical landmark. Still, there are many who consider the Tivoli Brewery to have substantial architectural and historical significance. Certainly, it is a delightful building in many ways.

Significant information regarding Tivoli Brewery includes the following:

Original Owner	John Good
Original Use	Business
Present Owner	Carl and Joseph Occhiato
Present Use	Business
Street Number	1342 Tenth Street
Wall Construction	Brick
Number of Stories	Two main stories
Date or Period	1859
Style	Old Country Bavarian
Architect	F. C. Eberly
Builder	Unknown
Exterior Condition	Poor
Interior Condition	Fair

Tivoli Brewery was founded in 1859 by John Good, a Bavarian Master Brewer, who brought the first loads of hops to Denver by ox cart in August 1859. He died in 1918 and the Brewery passed into the hands of his son, John Good, Jr. In 1965, the Brewery was purchased by the Occhiato Brothers from the Estate of Mrs. Loraine Good Kent Vichey, the widow of John Good, Jr. The old building is said to have the oldest water well in the City of Denver and it is considered as being one of the few remaining structures in the nation patterned after the old country breweries.

LANDMARK RESTRICTIONS

Buildings which have been designated as historical landmarks represent land use commitments on the Auraria Site. Because of this, it is considered necessary to define the obligations and restrictions created by such designation. With the exception of "National Register" the following information appears in the LANDMARK PRESERVATION ORDINANCE, Ordinance No. 63, enacted by the City and County of Denver, March 6, 1967.

APPLICATION

On every building listed as a "Landmark", the Landmark Preservation Commission must review any application for a building permit for any of the following acts:

1/ Alteration or reconstruction of, or addition to, the exterior of any improvement which constitutes all or part of a structure for preservation or located in a district for preservation;

2/ Demolition of any improvement which constitutes all or part of a structure for preservation or located in a district for preservation;

3/ Construction or erection of an addition to any improvement upon any land included in a district for preservation.

The Building Department shall within seven days transmit to the Commission a copy of this application for the building permit.

APPROVAL

The following procedure is used by the Commission in approving an application for building permit:

A/ Upon the request of any affected property owner, the Commission shall review any proposal for altering, constructing, reconstructing, erecting, adding to or demolishing any improvement covered in the three items listed above, prior to receiving an application for a building permit. If the Commission finds that the proposed work is of a nature which will not adversely affect or destroy any exterior architectural feature of the improvement and is appropriate or consistent with the spirit and purposes of Ordinance No. 63, it shall so indicate in writing.

B/ If, upon receipt of a copy of an application for a building permit from the Building Department, the Commission finds that the proposed work is of a nature which will not adversely affect or destroy any exterior architectural feature of the improvement and is appropriate or consistent with the spirit and purposes of Ordinance No. 63 the Commission shall so advise the applicant and the Building Department as soon as applicable, but in no event longer than 15 days after receiving the application for the building permit. The approval shall be in writing. Upon receiving the Commission's report of acceptability, the Building Department shall proceed with the review of the application for a building permit.

C/ No substantial change shall be made in an application for the building permit approved by the Commission without resubmittal to the Commission, and approval of such changes in the same manner as the original application.

DENIAL

If the proposed work is not acceptable as outlined above, the Commission shall deny the application for the building permit and shall so advise the applicant and the Building Department in writing as soon as practicable, but in no event longer than 15 days after receiving the copy of the application for the building permit. If no report is made by the Commission within said 15 days, the application for the building permit shall be processed as if it were approved, provided no substantial change is made in said application.

ACTION

If the proposed work is not acceptable as outlined above, the Commission, acting with all due diligence, shall explore all means for substantially preserving the structure for preservation or district for preservation which would have been affected by the required permit. These studies shall include contact with the original applicant for the building permit. These investigations may include, by way of example and not of limitation, the following:

A/ Feasibility of modification of the plans;

B/ Feasibility of any alternative private use of the structure or structures which would substantially preserve the original character thereof;

C/ Possibility of public acquisition for a public purpose of the structure or structures involved.

If the Commission is unsuccessful in developing either alternative plans or an appropriate public or private use for such structure or structures which are acceptable to the owner, it shall so notify the Building Department, in writing. If within 90 days from the date of receiving the original copy of the application for the building permit, the Commission does not submit such statement to the Building Department, the Building Department shall proceed as if such statement had been filed. Upon receipt of the statement, the Building Department shall notify the original applicant that if he files a new application for a building permit for the same work within 12 months of issuance of said notification by the Building Department, the application for the permit shall be processed in accordance with the usual procedures of the Building Department without further delay imposed by reason of Ordinance No. 63. If a period of more than 12 months elapses before the application for a building permit is refiled, or if the new application differs substantially from the original application, the new application shall be handled as if the initial application had not been made.

DANGEROUS CONDITIONS

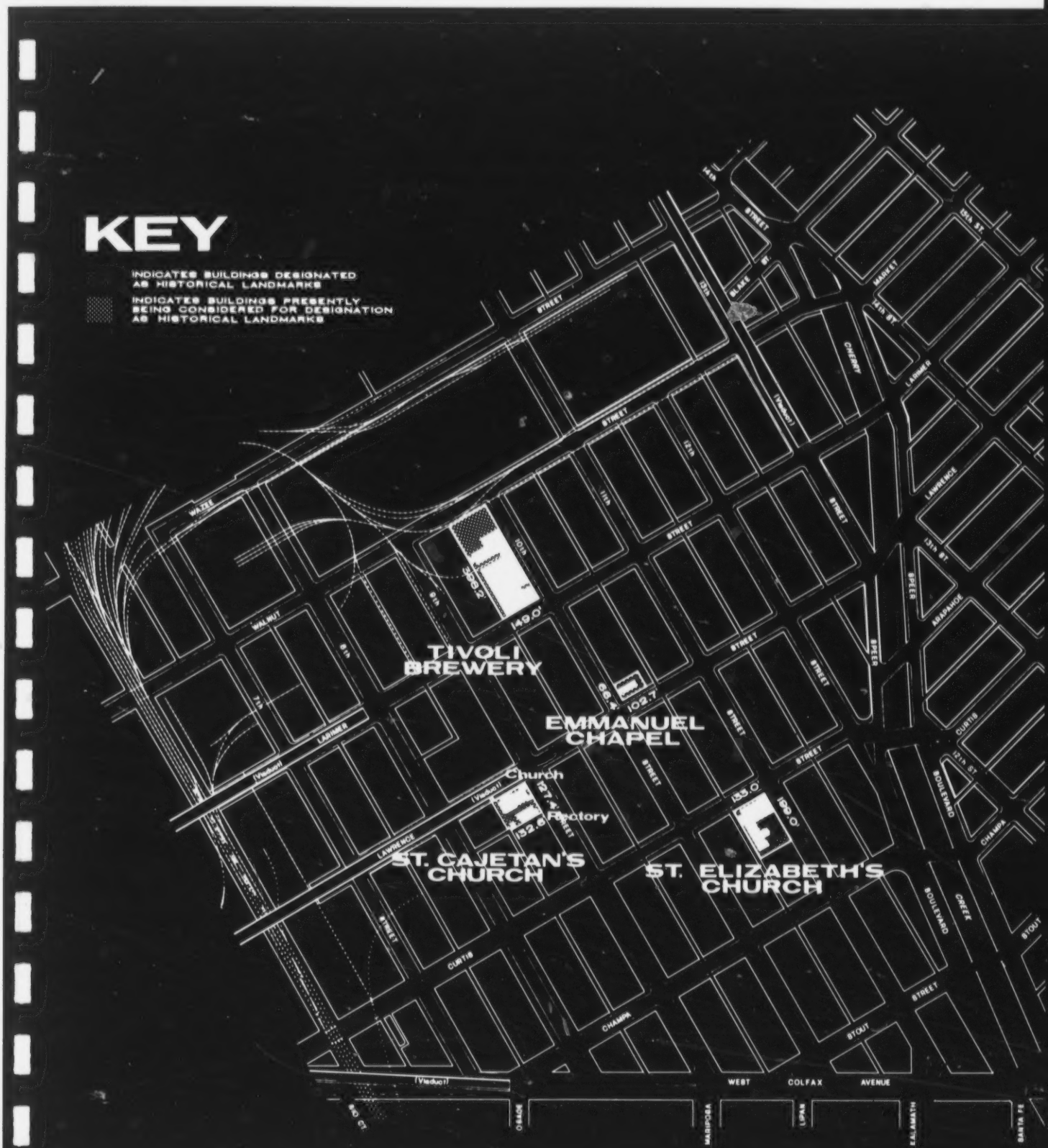
In any case where the Building Department, the Department of Health and Hospitals or the Fire Department or any other duly authorized officer or agency of the City and County of Denver shall order or direct the construction, reconstruction, alteration, repair or demolition of any improvement to a structure for preservation or in a district for preservation, for the purpose of remedying conditions determined by that department, agency or officer, to be eminently dangerous to life, health or property, nothing contained herein shall be construed as making it a violation of Ordinance No. 63 for any person to comply with such order or directive without receipt of a statement from the Commission. Any such department, agency or officer shall give the Commission as early notice as practicable of the proposed or actual issuance of any such order or directive.

NATIONAL REGISTER

When a historical landmark is given National recognition and placed on the National Register, further restrictions are placed upon it. These are outlined in Section 106 of THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 which reads as follows: "The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or Federally assisted undertaking in any state and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this act a reasonable opportunity to comment with regard to such undertaking."

In the specific instance of the Auraria Urban Renewal Project site, this requires the Secretary of HUD to take into account the effect of any Federally assisted undertaking on any district, site, building, structure, or object that is included on the National Register, before approving the expenditure of Federal funds on such undertaking. Section 106 also provides that the Secretary of HUD shall afford the Advisory Council on Historic Preservation a reasonable opportunity to comment with regard to activities which involve listings included on the National Register.

The data contained in this text, as well as that indicated on the drawing cross page, are based upon information provided by the Denver Landmark Preservation Commission.



Historical Landmarks

TIVOLI BREWERY
EMMANUEL CHAPEL
Church
Rectory
ST. CAJETAN'S CHURCH
ST. ELIZABETH'S CHURCH
149.0
102.7
135.0
199.0
132.6
CHAMPA
STOUT
CALIFORNIA
CURTIS
ARAPAHOE
LAWRENCE
BLAKE
MARKET
CHERRY
BOULEVARD
CREEK
(Viaduct)
WEST COLFAX AVENUE
O'BAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
0
200
400

arks

Present Land Use

Land uses presently existing on the Auraria Urban Renewal project site are a blend of residential, commercial, industrial, public and quasi-public transportation, and vacant properties. The extent of each of these land uses is identified on the drawing cross page.

In many instances, the buildings which are located in these land-use zones are in marginal or deteriorated condition. This is a fairly natural outgrowth of the fact that Auraria is one of the oldest portions of Denver. In a report of the Community Renewal Program for the City and County of Denver, it was stated that 74% of the residential structures on the site are classified as deteriorated or dilapidated and that the housing within the site falls into the lowest bracket in gross rental dollars produced in comparison to acquisition costs. Further, an estimated 10% of the housing units stood vacant at the time the Community Renewal Program was undertaken. It would seem probable that this situation has worsened rather than improved with the passage of time.

Reference to the aerial photograph on Page 5 of this report is suggested. The rather surprising amount of open land existing on the Auraria site is dramatically evidenced in an aerial view such as this.

LEGEND
Residential
Commercial
Industrial
Public and Quasi-Public
Transportation
Vacant
14th
BLAKE ST.
MARKET
14th ST.
CHERRY
LARIMER
LAWRENCE
13th ST.
ARAPAHOE
CURTIS
12th ST.
CHAMPA
STOUT
CALIFORNIA
BOULEVARD
CREEK
WAZEE
WALNUT
LARIMER
LAWRENCE
CURTIS
CHAMPA
STOUT
WEST COLFAX AVENUE
RIO CT.
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
(Viaduct)
STREET
BPEER
0
200
400

Zoning

The Auraria site is within the boundaries of the City and County of Denver and under most circumstances would be subject to the zoning regulations of this municipality. The State of Colorado, however, is not bound by municipal regulations, thus any use made of this site by the State of Colorado would not necessarily be required to comply with the zoning regulations. The following zoning analysis is based upon the assumption that the Auraria site will be developed in compliance with the zoning regulations of the City and County of Denver.

PRESENT ZONING

The Auraria Urban Renewal Project site is presently zoned I-1 District and I-2 District. These two zone districts are similar and include such allowable uses as some manufacturing, processing, and/or fabrication plants; certain wholesale and retail sales; warehousing and storage facilities; offices; banks; parking structures; restaurants; junk yards; etc.

The Colorado University/Denver Center site is presently zoned B-5 District. This zone district includes such allowable uses as wholesale and retail sales, warehousing, offices, banks, bowling alleys, billiard parlors, churches, dental and medical clinics, dance studios, hotels, institutions, laboratories, mortuaries, motels, post offices, private clubs, schools, theaters, veterinarians, hospitals, multiple unit dwellings, etc.

FUTURE ZONING

The principal use proposed for the Auraria site is for a higher education complex composed of one or more institutions of higher education and the necessary accessory and supporting facilities. This principal use best fits within the parameters of the R-5 District of the zoning ordinance of the City and County of Denver. One of the requirements of the R-5 District is a special zone lot plan for planned building groups. The planned building group will allow a maximum flexibility in the planning of the higher education complex. It is possible that a megastructure may be required and, if so, the planned building group will allow it.

R-5 DISTRICT

The following information has been extracted from the zoning ordinance of the revised Municipal Code of the City and County of Denver: Article 612 — District Regulations, Section 29, R-5 District. The following is outline in form and has been condensed. It should be used for general guidance purposes only.

EXTERNAL EFFECTS

All uses established or placed into operation after the effective date of this ordinance shall comply forthwith with the following limitations on external effects.

Enclosure of Uses — Every use, unless expressly exempted by this ordinance, shall be operated in its entirety within a completely enclosed structure.

Sound, Vibration, Heat, Glare, Radiation, and Fumes — Every use shall be so operated that the sound generated; the vibration generated; and the heat, glare, radiation and fumes emitted do not exceed the limits specified in this ordinance.

Outdoor Storage and Waste Disposal — No highly flammable or explosive liquids, solids, or gases shall be stored in bulk above ground. All outdoor storage facilities for fuel, raw materials, and products shall be enclosed by a fence or wall adequate to conceal such facilities from adjacent property.

PERMITTED USES

No land shall be used or occupied and no structures shall be designed, erected, altered, used, or occupied except for either one or more of the following uses by right provided, however, that a use by right may be accompanied by lawful accessory uses.

Uses By Right — The following uses may be operated as uses by right:

a/ Art Museum, Public
b/ Church
c/ Community Center
d/ Community Recreation Facility
e/ Fire Station
f/ Governmental Offices, excluding Maintenance Shops
g/ Institutions
h/ Library, Public
i/ Public Park and/or Playground: need not be enclosed
j/ Parking of vehicles for Art Museum, Church, Governmental Offices, Institutions, Libraries, Schools and Universities, or Colleges
k/ Police Station
l/ Residence for Clergy, including Monastery, Convent or Seminary
m/ School: 1) Elementary and/or Secondary School meeting all requirements of the compulsory education laws of the State of Colorado and not providing residential accommodations; exempted from limitations on external effects of uses relating to volume of sound generated; 2) any School not permitting the use of machinery, other than office machines and mechanical or machinery parts of household appliances used for instruction of or practice by the student. Repair as a service or the sale of repaired appliances prohibited. Classes or other school activities not permitted after 11:00 PM.
n/ University or College, including residential accommodations for students and faculty.
o/ Railway right-of-way: Any railway right-of-way existing on the date this ordinance became effective, but not including railway yards, maintenance, or fueling facilities; need not be enclosed.
p/ Landing or take-off area for police rotorcraft, not including maintenance, repair, fueling or hangar facilities; need not be enclosed.

ACCESSORY USES

a/ All Uses by Right — Incidental only to a use by right; any use which complies with all of the following conditions may be operated as an accessory use and need not be enclosed:

a-1/ Is clearly incidental and customary to and commonly associated with the operation of the use by right;

a-2/ Is operated and maintained under the same ownership or by lessees or concessionaires thereof, and on the same zone lot as the use by right;

a-3/ Does not include structures or structural features inconsistent with the use by right;

a-4/ Does not include residential occupancy except by domestic employees employed on the premises and the immediate families of such employees;

a-5/ If operated partially or entirely in detached structures, the gross floor area of such detached structures shall not exceed ten percent of the area of the zone lot; provided, however, that this limitation shall not apply to detached garages or detached carports used exclusively by occupants of structures containing the use by right or by persons employed in such structures;

a-6/ If operated partially or entirely within the structure containing the use by right, the gross floor area within such structure utilized by accessory uses (except garages and dining rooms for the exclusive use of occupants or persons employed in the structure) shall not be greater than 300 square feet or ten percent of the gross floor area of a structure containing any use by right.

PERMITTED STRUCTURES

Zone Lot for Structures — A separate ground area, herein called the zone lot, shall be designated, provided and continuously maintained for each structure containing a use by right. Each zone lot shall have at least one front line and shall be occupied only by that structure containing a use by right and a subordinate structure or structures containing only accessory uses. The zone lot for each structure shall be not less than 100 feet wide at the front setback line for structures and shall contain not less than 12,500 square feet. Upon application to and approval by the Department of Zoning Administration, the boundaries and area of a designated zone lot may be amended if full compliance with all requirements of this ordinance can be maintained.

Location of Structures — Except as otherwise hereinafter provided, the space resulting from the following setbacks shall be open and unobstructed.

a/ Front Setback — All structures shall be set in a distance of not less than 20 feet from each front line of the zone lot; provided,

however, that on the two shorter dimensions of any block oblong in shape, the front setback may be reduced to ten feet for structures which face on either longer dimension; and provided, further, that detached accessory structures, except those detached accessory structures used as garages or for recreational or outdoor cooking and eating purposes or gas fired incinerators, shall be set in a sufficient distance from each front line of the zone lot so that such structures are located only on the rear one-fourth of interior zone lots and on corner zone lots are located only on the rear part of the zone lot which is adjacent to and corresponding with the rear one-fourth of abutting interior zone lots and no closer to the side street right-of-way than thirty feet or one-half the dimension of the corner zone lot, measured perpendicularly from the side street right-of-way, whichever distance is greater;

b/ Rear Setback — If no alley abuts the rear line of the zone lot, all detached accessory structures and fixtures shall be set in a distance of not less than five feet and all other structures shall be set in a distance of not less than 20 feet from each rear line of the zone lot. If an alley abuts the rear line of the zone lot, detached garages and carports opening directly on the alley shall be set in a distance of not less than five feet from the alley line; detached accessory structures (including garages and carports which do not open directly on the alley) and fixtures for the disposal of trash and garbage may be located on the alley line and all other structures shall be set in a distance of not less than 20 feet from the centerline of the abutting alley;

c/ Side Setback — All structures shall be set in a distance of not less than seven feet and six inches from each side line of the zone lot;

d/ Permitted Encroachments on Setback Space — Belt courses, sills, lintels, and pilasters may project 18 inches into front, rear and side setback spaces. Cornices, eaves, and gutters may project three feet into front setback space, five feet into rear setback space and 36 inches into side setback space; provided, however, that, if the side setback space is less than five feet in width, then such projection shall not exceed one-half the width of the side setback space.

Outside stairways may project five feet into front setback space, ten feet into rear setback space and three feet into side setback space;

Unwalled porches, terraces and balconies may extend five feet into front and rear setback spaces;

Canopies may project any distance into the front setback space.

Any structure or part thereof which is below the grade of any setback space may project any distance into such setback space.

e/ Fences, Walls and Retaining Walls — Fences, walls and retaining walls not exceeding 48 inches in height may be erected on any part of the zone between the front line of the zone lot and the front setback line for structures and on any other part of the zone lot may be erected to a height not to exceed 72 inches; provided, however, 1) Retaining walls abutting public rights-of-way may be built to any height; 2) Schools, public parks and / or playgrounds may erect open-mesh fences to any height on any part of the zone lot and 3) on a corner zone lot, fences and walls not exceeding 72 inches in height may be built on the rear line of the zone lot and on the front line of the zone lot from the rear line forward to the rear of any structure containing the use by right.

Bulk of Structures — No part of any structure (except church spires, church towers, flagpoles, antennas, chimneys, flues, vents or accessory water tanks) shall project up through bulk limits which are defined by planes extending up over the zone lot at an angle of 45 degrees with respect to the horizontal (a pitch of one foot additional rise for each foot additional setback) and which planes start 1) at horizontal lines which are co-directional to the side line or lines of the zone lot and pass through points ten feet above the mid-point of each such side line or lines, and 2) at horizontal lines which are co-directional to the center lines of all streets abutting the zone lot and pass through points ten feet above the mid-point of such centerlines between the boundary lines of the zone lot extended, and 3) at, if no alley abuts the zone lot, a horizontal line which is co-directional to the rear line of the zone lot and passes through a point ten feet above the mid-point of such rear line of the zone lot; and if the rear line or lines of the zone lot are established by an abutting alley or alleys such planes shall start at horizontal lines which are co-directional to the centerlines of such abutting alley or alleys and pass through points ten feet above the mid-point of such centerlines between the boundary lines of the zone lot extended.

Maximum Zone Lot Coverage — The sum total of the ground area covered by all structures, on a zone lot, shall not exceed 60 percent of the area of the zone lot on which the structures are located.

Outside Area of Window Exposure — Each legally required window shall have not less than the following amount of outside exposure determined in the following manner: From a reference point located at the bottom center of the window, extend outward, at a right angle to the window plane, a horizontal sector of 140 degrees, centered on the window with a radius of ten feet. Within this sector the minimum required outside area of exposure for the window shall be any open sector or combination of sectors totaling 70 degrees. Applied in the direction of adjoining zone lots, the area which may be credited as outside area of window exposure, extends to required setback lines, regardless of the actual location of structures.

SIGNS
The provisions of Article 613, permitted signs, shall be in full force and effect in this district.

PARKING
The provisions of Article 614, off-street parking requirements shall be in full force and effect in this district. University and colleges are uses by right which are placed in parking class two. Parking class two requirements state that there shall be one off-street parking space provided for each 600 square feet of gross floor area contained in any structure or structures containing any use by right; provided, however, that for each habitable unit in a motel there need be provided not more than one off-street parking space.

LOADING
The provisions of Article 615, off-street loading requirements shall be in full force and effect in this district.

PLANNED BUILDING GROUPS
The provisions of Article 616, special zone lot plan for planned building groups shall be in full force and effect in this district. Under the standard provisions of this ordinance a separate ground area, referred to in the ordinance as the zone lot, must be designated, provided and continuously maintained for each structure containing a use or uses by right. Pursuant to the procedure hereinafter set forth, two or more of such structures may be erected and maintained on the same zone lot. Also, several zone lots may be combined into one special plan covering a planned building group. The procedure is intended to permit diversification in the location of structures and to improve circulation facilities and other site qualities while insuring adequate standards relating to public health, safety, welfare, and convenience in the use and occupancy of buildings and facilities in planned building groups.

LIMITATIONS
As to Scope — The procedure hereinafter set forth shall not be construed to waive nor shall there be waived thereby any regulation for any district except the regulation that a separate ground area, herein called the zone lot, shall be designated, provided and continuously maintained for each structure containing a use or uses by right.

As to Districts — The procedure set forth shall apply only in the R-1, R-2, R-2-A, R-3, R-3-X, R-4, R-5, B-1, B-A-1, B-2, B-A-2, B-3, B-A-3, B-4, B-A-4, B-6, B-8, I-P, and O-1 Districts, provided, however, that in the O-1 District the procedure shall apply only to buildings open to the public.

APPLICATION
Applications for Approval. How Made and Contents — All applications for approval of a special plan hereunder shall be filed with the Department of Zoning Administration by the owner or owners of the entire land area to be included within the special plan, the owner or owners of all structures then existing on said land area and all incumbrances of said land area and structures: shall contain sufficient evidence to establish that the applicants are the owners and all the incumbrances of the designated land and structures; shall contain such information and representations required by this ordinance or deemed necessary by the department and shall include plats and plans showing at least the following details, drawn to scale;

a/ The land area which would be included within the special plan, the present zoning classification of the designated area, the land area of all abutting districts and the present zoning classification thereof, all public and private rights-of-way and easements bounding and intersecting the designated area and the abutting districts which are proposed to be continued, created, relocated and/or abandoned;

b/ The proposed finished grade of the designated area, shown in contour intervals not to exceed two feet;

c/ A description of the proposed zone lot or zone lots and the boundaries thereof;

d/ The location of each existing and each proposed structure in the designated area, the use or uses to be contained therein, the number of stories, gross floor area and approximate location of entrances and loading points thereof;

e/ The location of all outside facilities for waste disposal;

f/ All curb cuts, driving lanes, parking areas, loading areas, public transportation points and illumination facilities for the same;

g/ All pedestrian walks, malls and open areas for use by tenants or members of the public;

h/ The location and height of all walls, fences and screen planting;

i/ The location, size, height, and orientation of all signs other than signs flat on building facades;

j/ The types of surfacing, such as paving, turfing or gravel, to be used at the various locations;

k/ The location of fire hydrants.

REVIEW
Review of Applications for Approval. Standards — All applications hereunder shall be reviewed for completeness by the Department of Zoning Administration and, if found to be complete, shall be transmitted to the planning office and to any other agency, either public or private, which might be affected by approvals of such applications. All applications hereunder shall be reviewed by the planning office and approved or disapproved. Any approval hereunder may establish necessary conditions and limitations.

Standard Provisions of Ordinance — No application hereunder shall be approved unless the application and the accompanying plats and plans comply with all regulations established for the district

or districts in which are located the land area and structures designated in such application, except the regulation that a separate ground area, herein called the zone lot, shall be designated, provided and continuously maintained for each structure containing a use or uses by right.

Site Facilities — All special plans hereunder shall make due provision for:

a/ Adequate design of grades, paving gutters, drainage and treatment of turf to handle storm waters, prevent erosion and formation of dust;

b/ Adequate, safe and convenient arrangement of pedestrian circulation facilities, roadways, driveways, off-street parking and loading space, facilities for waste disposal and illumination;

c/ Adequate amount and proper location of pedestrian walks, malls, and landscaped spaces to prevent pedestrian use of vehicular ways and parking spaces and to separate pedestrian walks, malls and public transportation loading places from general vehicular circulation facilities;

d/ Arrangement of buildings and vehicular circulation open spaces so that pedestrians moving between buildings are not unnecessarily exposed to vehicular traffic;

e/ Proper arrangement of signs and lighting devices with respect to traffic control devices and adjacent residential districts;

f/ In business building groups near or abutting residential districts, fences, walls or year-round screen planting when necessary to shield adjacent residential districts from parking lot illumination, headlights, fumes, heat, blowing papers and dust and to reduce the visual encroachment of commercial architecture, signs and activity on residential privacy and residential neighborhood character.

Minimum spacing between buildings, orientation of main window exposures and entrances in R-3, R-4, and R-5 Districts. The following required spacing between buildings shall be measured perpendicularly from any exterior building wall; it does not apply in corner-to-corner placement of buildings where perpendicular wall exposures do not overlap:

a/ In buildings containing multiple dwelling units, walls containing main window exposures or main entrances shall be oriented as to insure adequate light and air exposure; shall be so arranged as to avoid undue exposure to nearby through traffic ways or undue exposure and menace to concentrated loading or parking facilities; shall be so oriented as to preserve visual and audible privacy as between adjacent buildings;

b/ A building wall shall be located no closer to another building than a distance equal to one-half the height of the taller building of the two, but in no case less than 25 feet;

c/ Any open court area which otherwise complies with standard

of minimum spacing and open area of window exposure must, in any case, leave at least 25 percent of its perimeter free and unobstructed for access by emergency vehicles;

d/ A building group may not be so arranged that any temporarily or permanently inhabited building is inaccessible by emergency vehicles.

APPROVAL

Approved Special Plans Registered and Recorded — After completing its review of an application hereunder, the planning office shall return such application and all pertinent data, together with a notice of recommendation, to the Department of Zoning Administration. The department shall give due notice of disapproval to the applicants. Upon receipt of an approved application from the planning office, the department shall register a copy of the approved special plan among its records and shall record a copy thereof, or such other record thereof as deemed proper by the department, in the office of the clerk and recorder.

RESTRICTIONS

Effect of Registered and Recorded Special Plans — All special plans registered and recorded hereunder shall be binding upon the applicants therefore, their successors and assigns, shall limit and control the issuance and validity of all zoning permits and zoning certificates and shall restrict and limit the construction, location, use and operation of all land and structures included within such plans to all conditions and limitations set forth in such plans; provided, however, that upon application to and approval by the Department of Zoning Administration, based only upon a showing of engineering necessity therefore, minor changes in the location of structures may be permitted if such minor changes will not cause any of the following circumstances to occur:

a/ A change in the character of the development;

b/ An increase in the ratio of the gross floor area in structures to the area of any zone lot;

c/ An increase in the intensity of use;

d/ A reduction in the originally approved separations between buildings;

e/ An increase of the problems of circulation, safety and utilities;

f/ An increase of the external effects on adjacent property;

g/ A reduction in the originally approved setbacks from property lines;

h/ An increase in ground coverage by structures;

i/ A reduction in the ratio of off-street parking and loading space to gross floor area in structures;

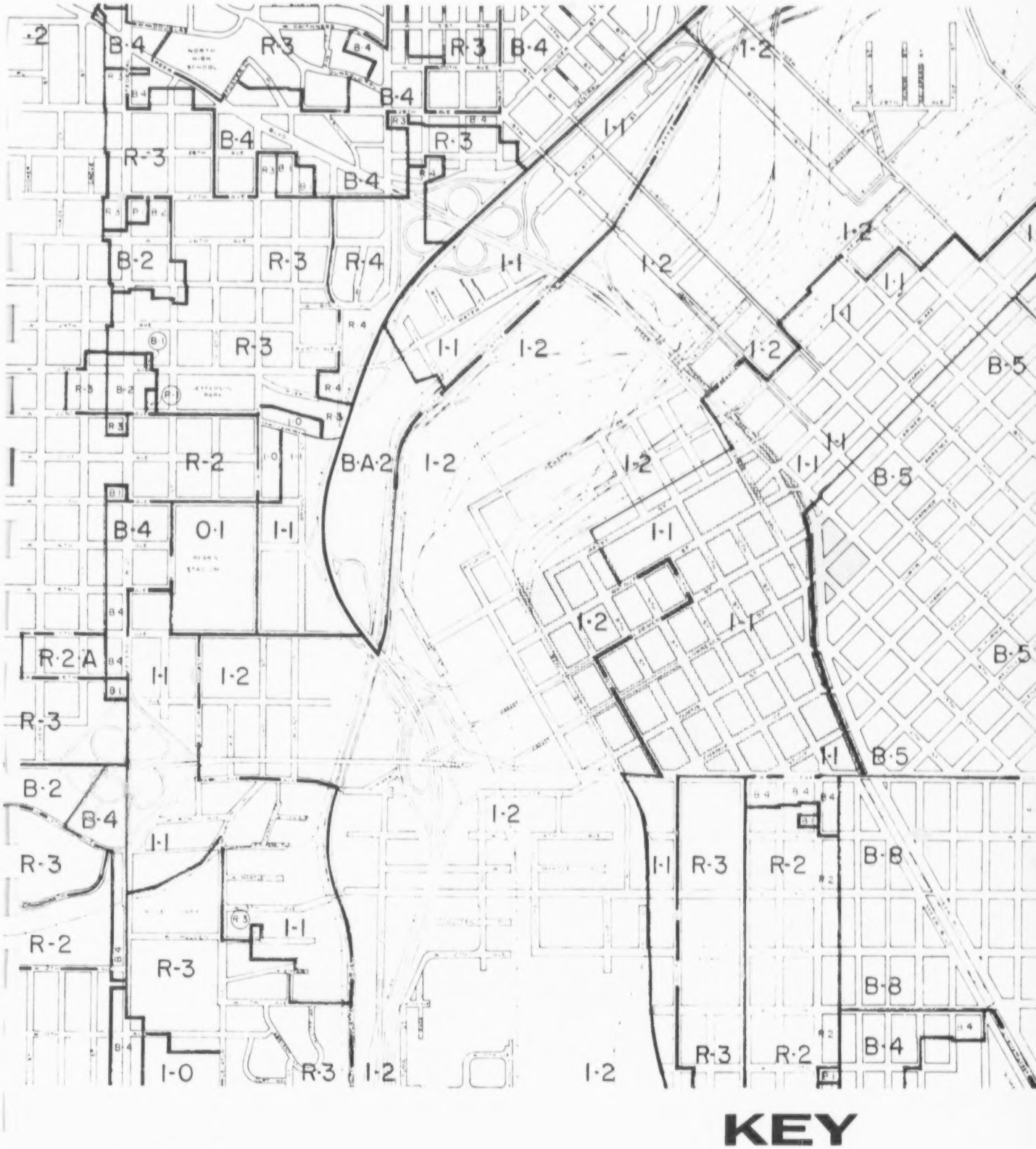
j/ A change in the subject, size, lighting, flashing, animation or orientation of originally approved signs.

AMENDMENT

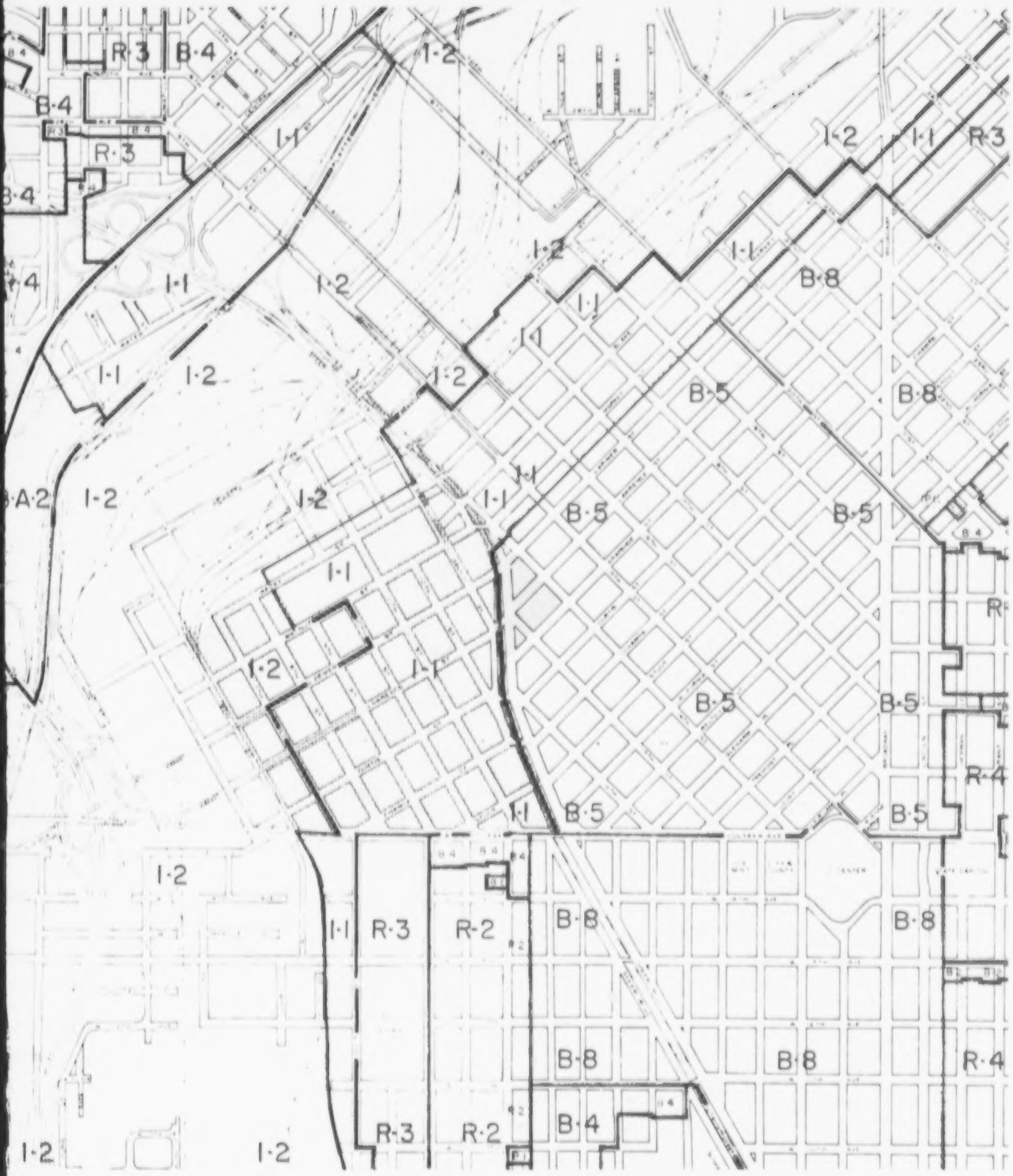
Amendment or Withdrawal of Registered and Recorded Special Plans — Pursuant to the same procedure and subject to the same limitations and requirements by which such plans were approved, registered and recorded, all special plans registered and recorded hereunder may be amended or withdrawn, either partially or completely, from registration and released from recording if all land and structures remaining under such plans can be made to comply with all conditions and limitations of such plans and all land and structures withdrawn from such plans can be made to comply with all regulations established by this ordinance and unrelated to any special plan hereunder. Upon approval of an application hereunder, the Department of Zoning Administration shall register among its records and record in the office of the clerk and recorder an appropriate certificate of such amendment or withdrawal.

PLANNING

The use of the Auraria site for a higher education complex seems completely consistent with the Comprehensive Plan for Community Excellence — Denver 1985 as prepared by the Denver Planning Office and officially approved in 1967.


B-4
R-3
B-2
R-4
R-2
B-A-2
0-1
I-1
I-2
I-0
R-2 A
B-5
B-8
KEY
INDICATES AREA CONTAINED WITHIN THE AURARIA SITE.
INDICATES AREA OCCUPIED BY COLORADO UNIVERSITY/DENVER CENTER AT THE PRESENT TIME PLUS FUTURE EXPANSION

Zoning



KEY

INDICATES AREA CONTAINED WITHIN THE AURARIA SITE.

INDICATES AREA OCCUPIED BY COLORADO UNIVERSITY/DENVER CENTER AT THE PRESENT TIME PLUS FUTURE EXPANSION AREA.

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Urban Renewal Projects

SKYLINE URBAN RENEWAL PROJECT

Generally speaking, the Denver Skyline Urban Renewal area is located in downtown Denver from Larimer to Curtis Streets and between Speer Boulevard and 20th Street. This area includes a total of approximately 26 blocks or 113 acres of which 53 acres will be acquired by the Denver Urban Renewal Authority.

The program for Skyline involves a major redevelopment of this portion of downtown Denver. It includes substantial removal of existing structures with some remodeling of those buildings considered to be in sound condition. The program expands public and educational facilities and plans for the development of office, residential, hotel-motel, general commercial, parking, and open space land uses. The estimated completion date for these activities is 1978-1980.

The southwestern one-third of the Skyline Urban Renewal area is shown on the drawing cross page. Also shown, is the location of the existing development to remain and the location of the existing development proposed for rehabilitation. It should be noted that the southwestern boundary of the Skyline project corresponds with a portion of the eastern boundary of the Auraria Urban Renewal Project.

SOUTH PLATTE REDEVELOPMENT

The South Platte Area Redevelopment Council was created because of a need to coordinate and implement citizen and government action in the redevelopment of the Platte River Valley. The membership of this organization consists of representatives of 40 private organizations and industrial and civic leaders. Some of their recent activities include a "work-in" involving citizens in the clean-up of the Platte, a "plant-in" held in the spring to make the Platte once more a green valley, and the encouragement of a hotel-motel complex along the central valley. Other projects include flood control, pollution control, beautification, encouragement of parks and open space, urban renewal and redevelopment, establishment of historical and cultural areas, development of transportation systems, and general improvement of the environment.

Included in the redevelopment are specific areas on both sides of the South Platte River from just south of Yale Avenue north to 52nd Avenue. The land adjacent to the Auraria site on the north boundary is one of these areas along with a strip of land to the southwest of Auraria. These are shown on the accompanying drawing.

MODEL CITY PROGRAM

Denver is one of several cities across the nation chosen by the Department of Housing and Urban Development to participate in what is called the Model Cities Program. This program was designed to develop new approaches to the long standing physical, economic, and social problems of the cities. The purpose of the Model Cities Program, as set forth in Federal legislation, is "to concentrate public and private resources in a comprehensive five year attack on social, economic and physical problems of slum and blighted neighborhoods."

Presently Denver's program consists of 75 projects directed toward 11 general goals:

1/ To provide for widespread citizen participation

2/ To rebuild or revitalize large slum and blighted areas

3/ To expand housing

4/ To expand job and income opportunities, reduce dependence on welfare

5/ To improve education facilities and programs

6/ To improve social services

7/ To combat disease and ill health

8/ To reduce the incidence of crime and delinquency

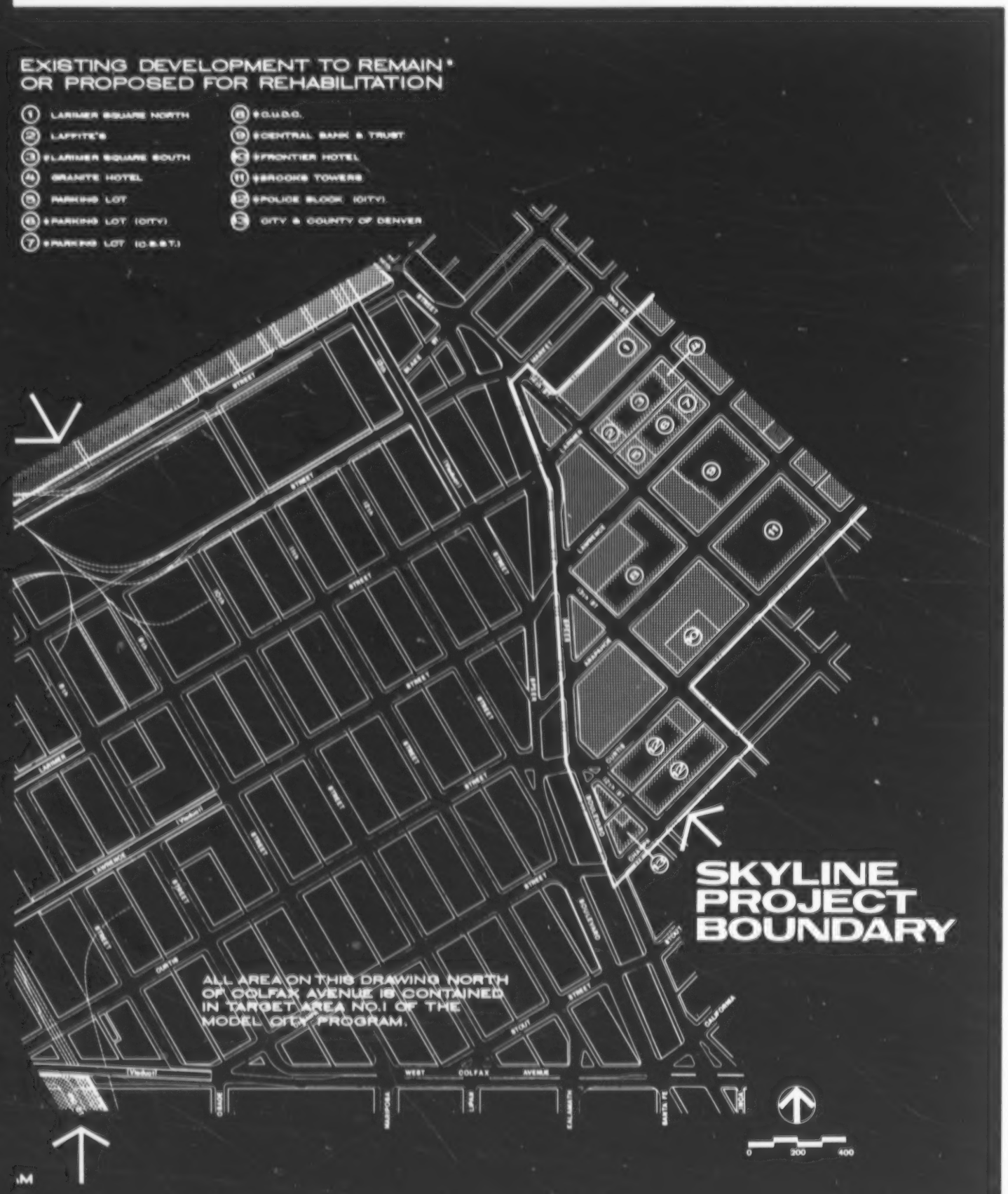
9/ To enhance recreational and cultural opportunities

10/ To establish better access between home and job

11/ To improve living conditions for model neighborhood residents

Denver's first year action program is concentrated in two model neighborhoods. Target Area No. 1 comprises 7.9 square miles, bounded roughly on the east by York Street, on the south by Colfax Avenue, on the west by Tejon Street, and on the north by 52nd Avenue. Target Area No. 2 is an "L" shaped, semi-rural area of about 580 acres in southwest Denver. It is bounded by South Federal Boulevard on the west, West Jewell Avenue on the north, West Dartmouth Avenue on the south, and South Zuni and South Osage Streets on the east. The Auraria Higher Education Center site falls within the boundaries of Target Area No. 1.

KEY
GENERAL COMMERCIAL - SKYLINE URBAN RENEWAL
PUBLIC PARK - SKYLINE URBAN RENEWAL
AREA CONTAINED IN THE SOUTH PLATTE PROGRAM
EXISTING DEVELOPMENT TO REMAIN OR PROPOSED FOR REHABILITATION
1 LARIMER SQUARE NORTH
2 LAFFITE'S
3 LARIMER SQUARE SOUTH
4 GRANITE HOTEL
5 PARKING LOT
6 PARKING LOT (CITY)
7 PARKING LOT (D.S.&T.)
8 C.U.D.O.
9 CENTRAL BANK & TRUST
10 FRONTIER HOTEL
11 BROOKS TOWERS
12 POLICE BLOCK (CITY)
13 CITY & COUNTY OF DENVER
THIS AREA IS CONTAINED IN THE SOUTH PLATTE REDEVELOPMENT PROGRAM
ALL AREA ON THIS DRAWING NORTH OF COLFAX AVENUE IS CONTAINED IN TARGET AREA NO.1 OF THE MODEL CITY PROGRAM.
THIS AREA IS CONTAINED IN THE SOUTH PLATTE REDEVELOPMENT PROGRAM
WEST COLFAX AVENUE


EXISTING DEVELOPMENT TO REMAIN*
OR PROPOSED FOR REHABILITATION
1 LARIMER SQUARE NORTH
2 LAFFITE'S
3 *LARIMER SQUARE SOUTH
4 GRANITE HOTEL
5 PARKING LOT
6 *PARKING LOT (CITY)
7 *PARKING LOT (D.R.&.T.)
8 *G.U.D.G.
9 *CENTRAL BANK & TRUST
10 *FRONTIER HOTEL
11 *BROOKS TOWERS
12 *POLICE BLOCK (CITY)
13 CITY & COUNTY OF DENVER
SKYLINE
PROJECT
BOUNDARY
ALL AREA ON THIS DRAWING NORTH OF COLFAX AVENUE IS CONTAINED IN TARGET AREA NO.1 OF THE MODEL CITY PROGRAM.
WEST COLFAX AVENUE
0 200 400

Summary

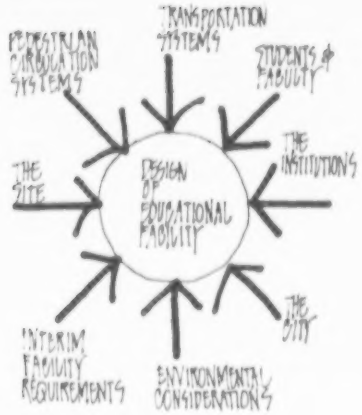
This section of the Long-Range Site Master Planning Study report has been devoted to the presentation of data related to the site of the Auraria Higher Education Center. Site Master Planning must be based upon a substantial fund of knowledge regarding the characteristics of the site if the plan is to be valid. Beyond that, these data will be useful to

project architects and others involved in specific projects at the Auraria Higher Education Center. Certainly, as detailed projects move along, additional site information will become necessary. Provision is made for the acquisition of detailed information as future planning procedures are discussed in later sections of this report.

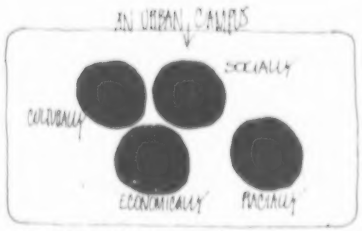
3 Form Generators

General

Many forces combine to influence the design of an educational facility. We call these forces FORM GENERATORS. At the Auraria Higher Education Center, an institution which will be unique in many ways, a specific set of major FORM GENERATORS has been considered as particularly influential. While each one of the forces which bear upon the design at Auraria may be applied to the design of any new campus, the urban nature of the Higher Education Center in combination with the multi-institution concept involving facility sharing tends to bring some of these forces into positions of greater than usual importance. The FORM GENERATORS include such elements as students and faculty, the three institutions, the city, transportation systems, environmental considerations, and interim facilities. While the true number of form generators is almost infinite, the ones just listed are of a very primary and critical nature. Because of their relative importance, they are discussed in this section of the Long-Range Site Master Planning report.



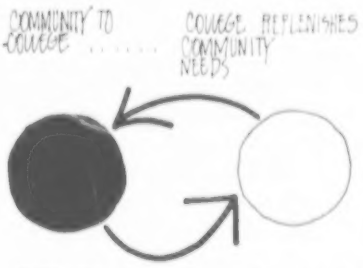
The discussion of FORM GENERATORS contained in this section is not structured in a manner which indicates the relative importance of one form generator in relationship to any other. This would be utterly impossible. Each element is of a critical nature in respect to certain aspects of the campus site planning procedure. Each form generator requires that certain decisions be made with regard to its effect upon the campus planning. These decisions ultimately lead to a series of commitments being made in connection with the use of certain portions of the campus land. The final portion of this section of the report identifies the land commitments which have been made by the Planning Team. These land commitments become the basis of the Site Master Plan which is presented in Section 4 of this report.



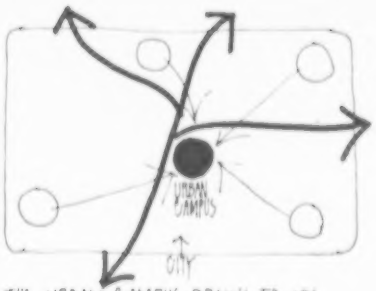
THE URBAN CAMPUS DRAWS A HIGHLY DIVERSIFIED POPULATION

Students and Faculty

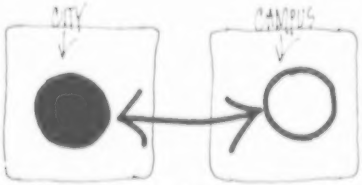
The urban campus attracts a highly diversified student population — diversed socially, racially, economically, and culturally. In comparison with the suburban campus, the urban institution will tend to have more students from minority and lower economic levels and more working and adult students. Sociological theories aside, the most basic reason for this is one of simple economics — the urban college is the only one many of them can afford. Urban students will frequently live at home and commute to classes. Therefore, the campus must be centrally located for easy transportation access. Psychologically, the inner city is familiar ground. The traditional, theoretic — sociological approach has been ineffective for urban students. The something new needed is a clear understanding of an active involvement with the urban environment. The urban campus supplies this to its students. The students have, for the most part, come from an urban environment and, after



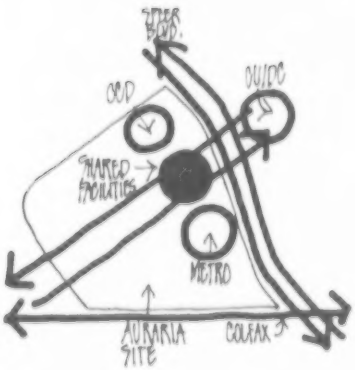
STUDENTS FROM AN URBAN ENVIRONMENT WILL REMAIN IN AN URBAN AREA AFTER GRADUATION .....



THE URBAN CAMPUS DRAWS TO ITS CLASSROOMS EXPERTS FROM DIVERSE SECTORS OF THE COMMUNITY



THE CITY ITSELF BECOMES A WORKING LABORATORY.....



graduation, most will remain in an urban area. Without regard to economic capabilities, many students are attracted to the urban institution of higher education as a matter of simple convenience. These people desire to make education a continuing part of their total life pattern. They will work — quite often at highly sophisticated tasks which demand considerable and continuing knowledge — part-time and seek to expand their education part-time. This means there must be reasonable proximity between job and classroom.

The faculty of an urban campus is related with the community and in close touch with the realities of city life. Faculty members work closely with the city and state agencies, committees, and social welfare groups. They draw to their classroom community experts who add "today" to last year's published theory and practice. They bring the city to the classroom and frequently take the classroom to the city. The facility response to the urban-oriented student is considerable and must be handled in a sensitive manner. In the first place, it must be easy to get from city to campus and return quickly and economically. This requires campus planners to give deep consideration to the transportation networks. Since the automobile is a frequent mode of arrival projected for the Auraria Higher Education Center, it is necessary that provisions be made to accommodate many automobiles on the site in a manner which is convenient and within the financial grasp of the students, faculty, and staff. Urban students generally prefer not to live on campus. They seek a feeling of identity even though their stay on campus may consume only a small portion of their full day's activity. Generally, the urban student doesn't have a great deal of time to waste. He is not likely to be on campus for long periods of time. In spite of this, he must eat and he seeks a pleasant environment in which to do so. He has social needs which must be met if he is to be comfortable in his surroundings, but his social activities extend well beyond the campus. All of these things and more must be considered in the design of the Auraria Higher Education Center.

The Institutions

Many advantages are seen if the University of Colorado/Denver Center, Metropolitan State College, and the Community College of Denver are gathered into a consortium which will share many elements of people, program, and place. No one is foolish enough to believe this geographic proximity will not lead to some difficulties at the same time as the advantages are enjoyed. Still, the opportunity to offer educational programs and resources of the greatest possible magnitude and breadth is an almost overwhelming consideration.

Three institutions of higher education are involved in the Auraria Higher Education Center Project — the University of Colorado/Denver Center, Metropolitan State College, and the Community College of Denver. Since other studies describe these institutions in some depth, this study will present brief descriptions only.

The University of Colorado/Denver Center offers a full spectrum of university level programs. The emphasis of these programs is at upper division and graduate levels. The Denver Center presently occupies permanent State-owned facilities which are described elsewhere in this report. Metropolitan State College is a four-year college stressing the arts and sciences as well as urban related technical and professional programs. This institution is presently operating in rented facilities located near the Auraria site in the central business district of Denver. The Community College of Denver is a multi-campus institution which offers programs in occupational areas which prepare students for specific jobs or careers as well as college transfer programs in the first two years of general collegiate education after which students can transfer for the final two years to a college or a university. All three of these institutions seek to provide urban-oriented programs reaching people of all ages and interests.

Due to the geographic proximity which the Auraria site will offer these institutions, and because facility improvements and economies are possible, certain facilities needed by the three institutions will be shared. While some sharing will take place in facilities assigned individually to the institution, other sharing will occur in common facilities constructed separately from the facilities of the individual institutions.

Enrollment predictions and gross building space requirements for unshared space are described in the two tables below. Phase 1 deals with enrollment levels which are predicted for the fall of 1976. While the institutions have not been authorized to exceed Phase 1 Enrollment Levels, it is believed that campus facilities should be planned in a manner which will permit institutional growth to the maximum levels indicated below if demand caused by population growth or other factors require Phase 1 Enrollment Levels to be exceeded. Data contained in this table were obtained from the institutions themselves or the Colorado Commission on Higher Education.

Shared facilities required by the institutions have been projected in two categories — central facilities and peripheral facilities — dependent upon their most appropriate location in relationship to the site itself. Based upon data provided to LKA by the consultants programming shared facilities, it is expected that central facilities will include such building space use classifications as library, theater, concert hall, gallery, computer center, student services, physical education, centrex, and heating and cooling facilities. It is estimated that a gross building area of 678,500 square feet will be required at Phase 1 and 1,131,500 square feet will be required at maximum growth for the central shared facilities. The peripheral shared facilities will include physical plant, campus security, and publications. At Phase 1, the gross area of peripheral facilities will be 101,000 square feet and, at maximum, the peripheral facilities are scheduled to attain a gross size of 196,000 square feet.

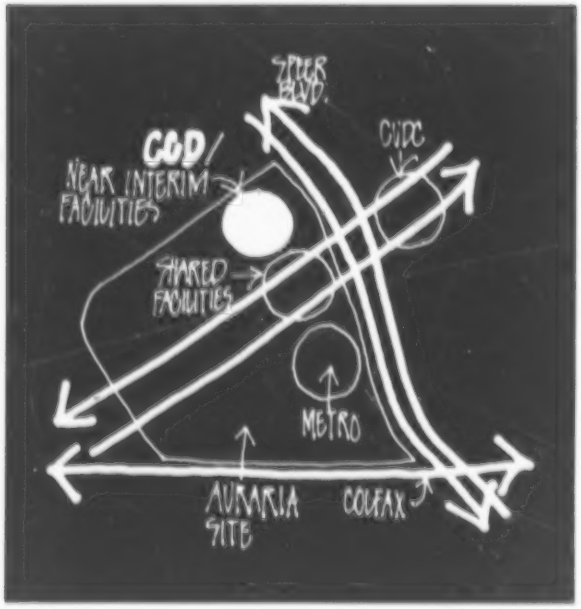
PHASE 1

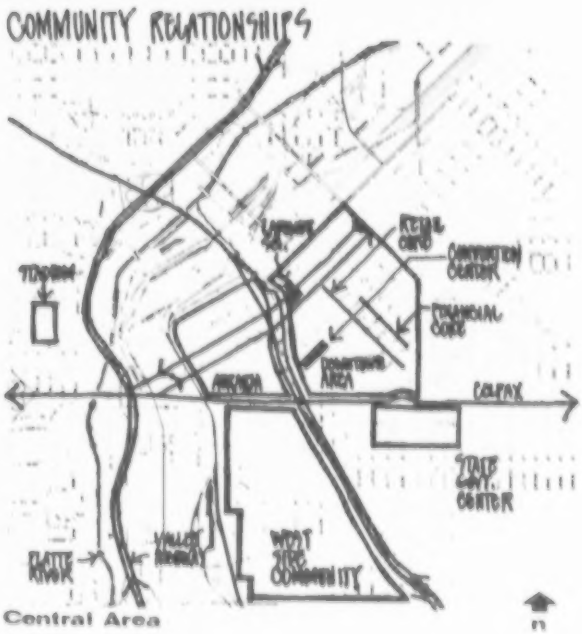
Institution	Enrollment (FTE)* Total	Day	Evening	Gross Building Area in Square Feet
CUDC	6,500	2,900	3,600	600,000
METRO	12,794	10,235	2,559	1,122,000
CCD	3,415	2,049	1,366	222,000
TOTAL	22,709	15,184	7,525	1,944,000

MAXIMUM

Institution	Enrollment (FTE)* Total	Day	Evening	Gross Building Area in Square Feet
CUDC	11,200	5,600	5,600	975,000
METRO	18,700	16,000	2,700	1,877,000
CCD	7,500	5,000	2,500	480,000
TOTAL	37,400	26,600	10,800	3,332,000

*Full time equivalent





Central Area

Therefore, the following table, which is based upon predictions contained in the preceding paragraph, presents general predictions in connection with the gross building area required for the total Auraria Higher Education Center complex at Phase 1 and at potential maximum growth.

GROSS BUILDING AREA BY PHASE

COMPONENT	GROSS BUILDING AREA (SQUARE FEET) PHASE 1	MAXIMUM
CUDC	600,000	975,000
METRO	1,122,000	1,877,000
CCD	222,000	480,000
SHARED – CENTRAL	678,500	1,131,500
SHARED – PERIPHERAL	101,000	196,000
TOTAL	2,723,500	4,659,500

It should be emphasized that the gross building areas indicated in these tables are preliminary in nature in some cases. Several of the institutions have not completed the formal program planning process and, because of this, formal approvals of space projections have not been achieved at the date of this writing. For that reason, the only alternative acceptable for the purpose of this study was to make use of preliminary figures.

In addition to providing information regarding student, faculty, and staff sizes, and projections of building space needs, both of which are strong form generators, the institutions established a relationship pattern which they believed should exist on the site between each other and with the shared facilities. Location of the major building zones on the site desired by the institutions became major influences in the remainder of the planning. Obviously, the building zone for the CUDC facilities was greatly influenced by the fact that a portion of its facilities already existed. Metropolitan State College being the largest of the institutions was logically placed in the largest open area on the site. The Community College of Denver, desiring to make use of certain facilities already existing on the site, was located on a portion of the site proximate to what it hopes will become its interim buildings. Properly, the shared facilities were located in a manner which would permit an easy flow of people and resources between the shared facilities and each of the three institutions — thus, a central location has great merit.

The City

Several major areas in which there are strong relationships between the City and the Auraria Higher Education Center have become major form generators in the master planning process.

The Auraria site borders the central business district which contains such elements as major retail businesses; the financial core of the Rocky Mountain Region; the State, County, and City Government Centers; the convention facilities; cultural and entertainment facilities. A major flow of people — both by foot and by vehicle — will exist between the central business district and Auraria.

A basically residential area known as the West Side Community rests immediately south of the Auraria Higher Education Center site. In order to respect the residential scale of the West Side Community, a no-building zone has been established on the Auraria site along its south edge. Further, many of the residents of the West Side Community attend St. Cajetan's Church. A greenway has been developed on the Auraria site to serve as a pleasant connector between the community and its church.

To the west and north of the Auraria site rests an area primarily used as railroad yards and industrial or warehousing sites. It is likely that placement of the Higher Education Center on the Auraria site will result in an upgrading of the use of this land. Planning at Auraria will be developed in a manner which will encourage this land development to be appropriate to the functions of the community and the Higher Education Center. As related to the Higher Education Center, one can easily see the possibility of student service oriented land uses being appropriate. These might include eating, entertainment, and even housing facilities. It is possible this land area may also be considered as an appropriate location for facilities related to the 1976 Winter Olympic Games which are to be held in Denver. This concept would appear to have substantial logic in that many facilities required by the Olympic Games could also become exceedingly useful for long-term use at the Auraria Higher Education Center.

The Site

Aspects of the site as a FORM GENERATOR have been discussed in Section 2 of this report. The planning response to site conditions will be presented in Section 4 which follows.

Transportation Systems

At the very outset of the Long-Range Site Master Planning effort, it was recognized that the transportation systems related to the Higher Education Center would be pivotal FORM GENERATORS. Transportation systems not only connect Auraria with its service area to provide effective, rapid, and convenient access to the campus by those who would use it but also deal with the circulation of vehicles once they have entered the campus itself. Thus, this section of the planning report deals with off-campus automobile traffic, on-campus automobile traffic, and mass transit systems beyond and within the campus boundaries. Present conditions are considered and much effort is devoted toward the process of looking into the future to determine the effects of change upon transportation networks.

This section of the report first reviews the probable generation of total trips to and from the campus, concentrating specifically on trips made in private automobiles. Then it examines vehicular access to the site at the present time, at Phase 1, and at maximum development. The traffic impacts of land development adjacent to the Higher Education Center are also examined. Finally, this section examines the interior vehicular circulation requirements at the campus and the parking requirements.

In the process of analyzing transportation aspects of the Higher Education Center, a position of considerable importance has been assigned to public transit facilities for the movement of students and faculty to and from the Auraria campus. This has been done conscientiously and with full recognition of the present state of public transit in Denver. It is generally agreed among those who are knowledgeable about the projected transportation needs of major urban areas such as Denver, the long-term vitality of central business districts is highly dependent upon the timely completion of effective transportation systems. Increased patronage of a public transportation system by Higher Education Center students, faculty, and staff could be the single most important factor contributing to the success of a public transportation system for the entire Denver Metropolitan Area. Recent events, most notably the plan to build a new demonstration transit vehicle from Mile-High Stadium parking facilities to the Denver Central Business District — through the Higher Education Center campus — tends to substantiate this planning decision.

PRESENT VEHICLE GENERATION OF THE AURARIA SITE

In considering the presumed additional traffic load that will be generated by the Auraria Higher Education Center, it is necessary to determine the number of automobiles already coming into the area due to present land uses as well as the present traffic load created by the students, faculty, and staff at CUDC and Metro which are already operating near Auraria.

The present Auraria site is occupied by a heterogenous mixture of land uses ranging from residential through industrial. The 1959-1960 Origin and Destination Study of the Denver Metropolitan Area Transportation Study (DMATS) estimated that about 13,300 vehicle trips per day were generated by the Auraria site and by the area immediately west and northwest of the site bounded by the South Platte River. The Auraria site itself probably accounted for at least 90 percent of these trips. In the decade since the O & D survey, the number of residents, establishments, and total floor area in commercial and industrial uses have all declined. At the same time, there is greatly increased use of land in the site by Central Business District (CBD) all-day parkers. It is estimated the net change in trip generation by the Auraria site is a decrease of about 10 percent to about 12,000 trips (6,000 "ins" and 6,000 "outs").

Further consideration of net Auraria trip generation must consider the present number of trips to the Denver CBD made by CUDC, Metro, and CCD students. It is estimated that the 14,800 students in the Fall of 1970 generated about 9,200 vehicle trips to and from the CBD.* Allowing a reduction factor of 20 percent for dual trip purposes (students who had another purpose for their trip to the CBD, i.e., work, shop, personal business, etc.), the net CBD generation of Higher Education Center students in 1970 was 7,400 trips. To fully assess the impact of relocating these trip origins and destinations to the Auraria site, an approach distribution analysis would have to be applied. This is done later in this report for another purpose but the results are not directly transferable to this situation because Metro does not presently now occupy its ultimate site. Thus, the combined present trip generation of the Auraria site (and to the nearby Metro and CUDC facilities is about 19,400 trips.

EXPECTED TRIP GENERATION OF AURARIA, PHASE 1

The most appropriate way to estimate the future trip generation resulting from Phase 1 completion of the Auraria HEC site is to determine a range of vehicle trip generation based upon (a) an extension of present generation rates and (b) a modification of rates because of improved public transportation. The "modal split" factors for these two conditions are estimated in Table 1 below.

Table 1

MODAL SPLIT OF HEC STUDENTS

Transportation Mode	Present Rate (1)	Improved Transit (2)
Bus Passenger	12.1%	20.0%
Auto Driver	44.2	35.0
Auto Passenger	43.7	45.0
Total	100.0%	100.0%

(1) 1969 survey of Metro State students
(2) Alan M. Voorhees Estimates

Table 2 shows that the resulting trip generation range is from about 20,900 to about 25,400 trips per day.

Table 2

PROJECTED RANGE OF 1976 TRIP GENERATION

	STUDENTS		FACULTY		STAFF		TOTAL TRIPS [5]
	Number (Total Headcount)	Vehicle Trips [3]	Number	Vehicle Trips [4]	Number	Vehicle Trips [4]	
A. Present Generation Rates (1)	32,562	20,200	1,517	2,030	1,220	1,630	25,360
B. Improved Transit (2)	32,562	16,000		1,970		1,460	20,930

* Based on the assumption that 44.2 percent of the total average daily students drove a vehicle to and from the campus. The average daily number of students attending classes is assumed to be 70 percent of the total student headcount. (This latter assumption is based upon national averages for similar institutions.)

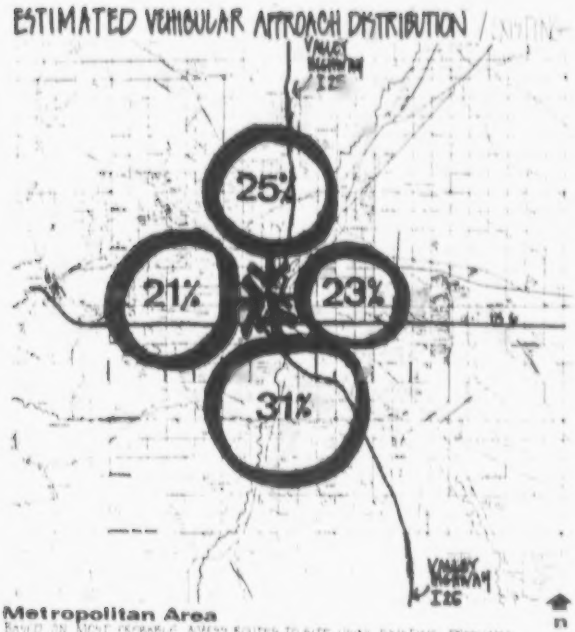


Figure 1

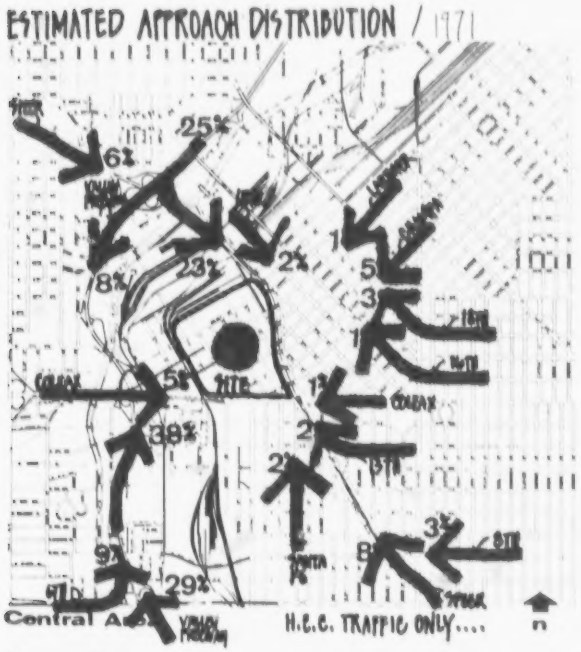


Figure 2

(1) Percent of auto drivers at present:

students:	44.2%
faculty:	67.0%
staff:	67.0%

(2) Percent auto drivers with stronger transit system:

students:	35.0%
faculty:	65.0%
staff:	60.0%

(3) Total vehicle trips = .70 x student headcount x percent auto drivers x 2

(4) Total vehicle trips = total number x percent auto drivers x 2

(5) Includes 1500 visitor trips per day

This trip generation range shows that the net increase in trips generated by the HEC site, in 1976, would range from 1500 to 6000 additional trips. Based upon stated City of Denver policy of improving transit and a Higher Education Center policy of limiting the number of campus parking spaces to 6,080, it appears reasonable that the lower generation estimate may be the more correct number of vehicles. The 4,100 additional trips would add only about 330 vehicles to CBD access streets in the morning peak hour — a negligible increment.

ACCESS TO THE AURARIA HIGHER EDUCATION CENTER SITE

Approach Distribution

The approach distribution of private automobiles driving to parking facilities on the Higher Education Center Campus is shown in the accompanying illustrations.

Figure 1 illustrates the broad, area-wide approach distribution to the site from major quadrants of the Denver metropolitan area. This distribution is based upon a subdivision of the region into several "population basins" served by major freeways and arterials which provide access to Auraria. The percentage distribution was determined from a crude estimate of the percent of regional population in each basin, modified by the proportion of total vehicular travel on each of the access routes. The results of this analysis indicate that approximately 31 percent of the HEC-bound vehicles would approach the site from the south (via I-25 and Santa Fe Drive), about 21 percent would approach from the west and northwest (via 6th Avenue Expressway, Colfax, and Speer Blvd, and the 15th Street Viaduct), about 25 percent from the northwest, north, and northeast (via I-70 east and west and I-25) and about 23 percent from the east (via 32nd Avenue, 18th Avenue, 16th Avenue, Colfax, 13th Avenue, 8th Avenue and Speer Blvd.). Figure 2 shows this distribution, in finer detail, on all major street and highway routes serving Auraria.

Figure 3 illustrates the approach distribution in the immediate vicinity of Auraria if the Campus is in operation before the Market-

Blake Parkway system is completed and before any improvements are made to Speer Boulevard (the 13th and 14th Street Viaducts). Construction of the westbound lanes of the Colfax Viaduct would not affect the distribution of approaching traffic to Auraria. It is estimated that about 51 percent of all traffic approaching the Higher Education Center would do so by way of the Lawrence Street Viaduct and the Curtis Street ramp from I-25 northbound. These two ramps would serve all traffic from I-25 northbound, from Colfax eastbound and a portion of traffic from I-25 southbound. About 41 percent of the traffic destined to the HEC would enter the campus from the north and northeast on Larimer Street and to a lesser extent on Blake Street. Of the traffic entering on Larimer Street, at least two-thirds of this traffic would be southbound traffic on Speer Boulevard. Of the remaining 35 percent, about one-half would be southbound on Larimer Street and one-half northbound on Speer Boulevard.

After the Market-Blake Parkway is constructed, and assuming that this parkway system interchanges with the I-25 Freeway west of the Campus, and after improvements are made to the Speer Boulevard alignment in the vicinity of 13th and 14th Streets, the approach distribution to the HEC would be altered to some extent. The resulting new approach distribution is shown in Figure 4. The Market-Blake Parkway system could divert about 18 percent of the traffic entering the campus from the I-25 Freeway system. Most of this would be a diversion from Lawrence Street, but a small amount would be a diversion from Speer Boulevard because of shorter travel time to parking on the Campus. The percentage of approaching traffic on the Lawrence Street Viaduct is indicated as having been reduced from 38 to 25 percent of the total. At the north end of the campus, it is assumed that a direct access ramp to the campus from Speer Boulevard would be constructed. This assumes that there would be a grade separated interchange between Speer and the Market-Blake Parkway. This would divert most of the campus-bound traffic from Speer Boulevard to the Market-Blake Parkway, and only a relatively small amount of traffic would enter the campus at Larimer Street. Likewise northbound traffic on Speer Boulevard would also be more likely to enter the campus on the Market/Blake Parkway system rather than on Larimer Street.

Traffic Volumes on the Approaching Freeway and Major Arterial Systems. A preliminary assignment of future traffic volumes resulting from the development of the Higher Education Center Campus has been made to the access street and highway system. Again, two assignments have been developed showing (1) the volumes that would result if no improvements were made to the highway system serving the area, and (2) the volumes that would result if the proposed Market-Blake Parkway system were developed and improvements made to Speer Boulevard.

Traffic volumes have been examined for the morning peak hour period which occurs in the hour from 7:00-8:00 AM. The morning

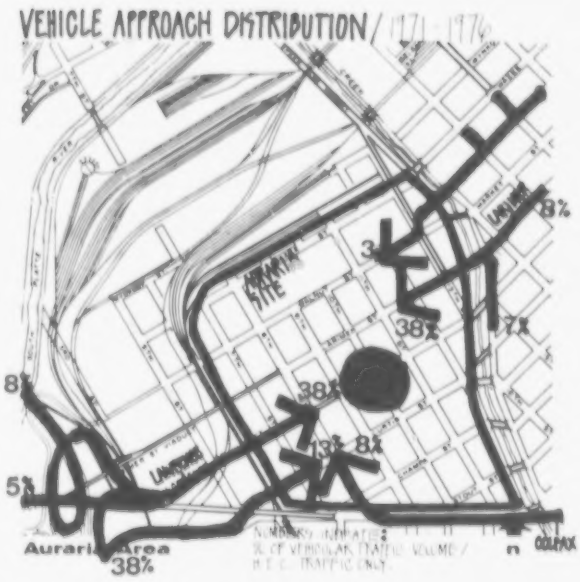


Figure 3

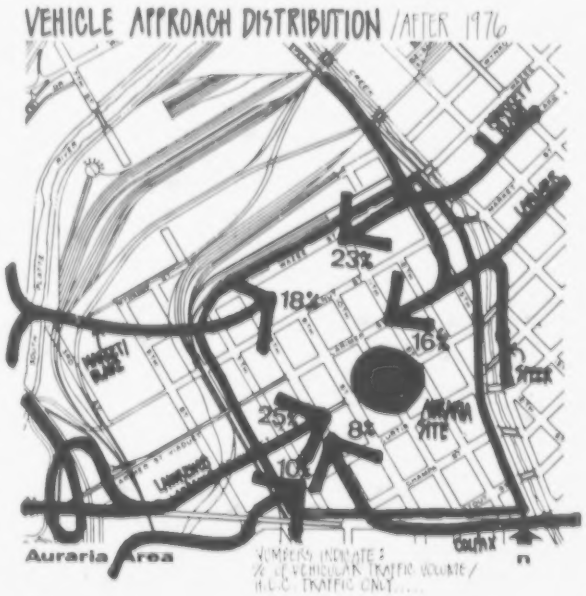


Figure 4

peak hour was selected because it coincides with the greatest influx of students arriving on campus for 8:00 AM classes. The evening peak hour presents only minor problems because very few (only 2,200 students in 1976) are on campus in the hour from 4:00 PM to 5:00 PM(1).

Several important assumptions were made in developing traffic volume estimates for the freeway and arterial street network providing access to Auraria:

1/ The base analysis year is 1976.

2/ Students, faculty and staff driving to the Higher Educational Center will park their vehicles on campus or in the projected Convention Center Parking Garage immediately adjacent to the CUDC facility northeast of Speer Boulevard.

3/ The peak accumulation of vehicles on the campus will not exceed the proposed 6,080 parking spaces to be made available.

4/ Vehicle accumulation on the campus will be directly proportional to the student accumulation.

5/ 3,425 HEC vehicles will arrive on campus during the 7:00 to 8:00 AM peak hour.

6/ The net increase of vehicles arriving on the campus during the morning peak hour will be 1,175 vehicles. This assumes that 50 percent of the 2,500 present off-street parking spaces are normally occupied from 7:00 AM to 8:00 AM and that there is a diversion of 1,000 student and faculty vehicles from present parking spaces to the Auraria Campus.

7/ Present traffic volumes will increase 10 percent by 1976.

These assumptions result in a very conservative analysis of the access street system, for the derived increment of additional traffic generated by the Higher Education Center is considerably higher than the numbers estimated on earlier pages of this section in the generation analysis. This is considered to be a prudent course of action because there is no way to verify the exact traffic situation in 1976. Furthermore, the results of this analysis give a better overall perspective from which to evaluate the traffic impact of the Auraria Higher Education Center.

The results of the assignments are given in Tables 3 and 4. It is significant to note that, even with the higher assumed increment of Auraria traffic and no street improvements, only Speer Boulevard and Lawrence Street would be operating over capacity in 1976 (Table 3). If the anticipated street improvements are made, no street would be over capacity in 1976. (Table 4).

(1) Hour by hour headcounts of students, estimated for Phase I and Maximum enrollments were furnished by Planning Committee Staff.

Table 3

MORNING PEAK HOUR TRAFFIC ANALYSIS (1)

(7:00-8:00 AM)
A. NO STREET IMPROVEMENTS
(Based on 1976 Enrollment: Headcount 32,562)

Street Name	Street Approaching	1976 Traffic Peak Hour (2)	Approach Distribution % HEC	Net Increase in Traffic Due to HEC Load	Total Traffic	Capacity (3)	Volume Above Capacity
Speer	Larimer	2250	23	270	2520	2250	1.12
Blake	Speer	220	3	35	255	1460	0.18
Larimer	12th Street	1120	38	445	1565	1800	0.87
Speer	Stout	2090	7	80	2170	2250	0.97
Colfax	8th Street	1160	8	95	1255	1350	0.93
Curtis	7th Street	430	13	150	580	950	0.61
Lawrence	9th Street	1780	38	445	2225	2100	1.06
Colfax	Lawrence	2060	5	60	2120	2650	0.80

1) Assumptions:
   a. 3,425 HEC Vehicles will arrive on campus beween 7:00 and 8:00 AM.
   b. There are about 2400-2600 off-street parking spaces in Auraria now.
   c. Assumes that the Net Increase in vehicles arriving in AM. Peak Hour equals 3425 – (50% x 2500) – 1000 (diverted vehicles) = 1175.
2) Assumes that 1976 Peak Hour Traffic Volume is 110% of 1969 Volume.
3) Capacity with no curb parking permitted.

Table 4

MORNING PEAK HOUR TRAFFIC ANALYSIS (1)

(7:00-8:00 AM)
B. BLAKE-MARKET PARKWAY and SPEER IMPROVEMENTS
(Based on 1976 Enrollment: Headcount 32,562)

Street Name	Street Approaching	1976 Traffic Peak hour (2)	Approach Distribution % HEC	Net Increase in Traffic Due to HEC Load	Total Traffic	Capacity (3)	Volume Above Capacity
Speer	Blake	2250	21	245	2495	2950	0.85
Speer	Larimer	1900	6	70	1970	2350	0.84
Blake	Speer	750	3	35	785	1950	0.40
Larimer	12th Street	850	16	190	1040	1800	0.58
Speer	Stout	2090	7	80	2170	2250	0.97
Colfax	8th Street	1160	8	95	1255	1350	0.93
Curtis	7th Street	430	10	120	550	950	0.58
Lawrence	9th Street	1200	25	295	1495	2100	0.71
Colfax	Lawrence	1500	5	60	1560	2100	0.74
Market	8th Street	750	18	210	960	2350	0.41

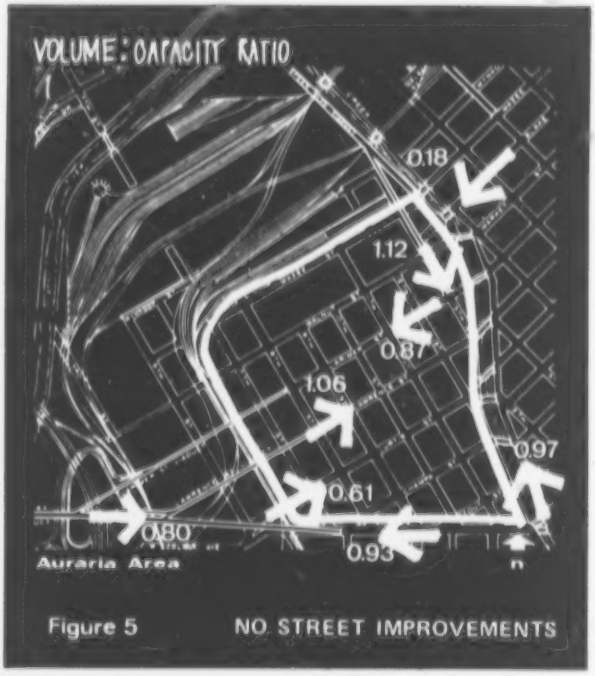


Figure 5 NO STREET IMPROVEMENTS

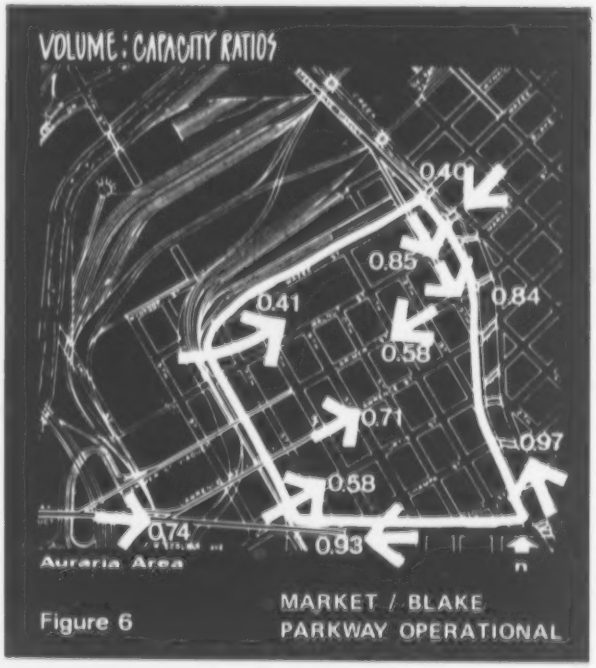


Figure 6 MARKET / BLAKE PARKWAY OPERATIONAL

1) Assumptions:
   1. 3,425 HEC Vehicles will arrive on campus between 7:00 and 8:00 AM.
   2. There are about 2400-2600 off-street parking spaces in Auraria now.
   3. Assumes that the Net Increase in vehicles arriving in AM Peak Hour equals 3425 – (50% x 2500) – 1000 (diverted vehicles) = 1175.
2) Assumes that 1976 Peak Hour Traffic Volume is 110% of 1969 Volume.
3) Capacity with no curb parking permitted.

TRAFFIC IMPACTS OF ADJACENT LAND USES

The Auraria Higher Education Center site is a part of a larger geographic unit defined by the South Platte River, Speer Boulevard, Cherry Creek, and Colfax Avenue. Thus, transportation planning for the Higher Education Center should consider the probable impacts of future development of the lands outside the site itself.

Except for a relatively small (about 45 acres) area west of the Higher Education Center site which is used industrially, the majority of the land is used by the railroads for classification yards and maintenance facilties. Over the years, there have been many plans suggesting redevelopment and/or more intensive use of this land area. In 1966, the Mayor's Platte River Development Study report recommended that this site be utilized for a major outdoor sports complex, for housing, and for hotel/motel facilities. These plans are continually being refined in studies being conducted by the South Platte Area Redevelopment Council (SPARC). Most of these studies have assumed that the railroad yards would be relocated outside the central area of Denver. Recently, there has been consideration of the area as a site for some of the 1976 Winter Olympic Games, a facility that would be built in conjunction with a major metropolitan area sports stadium on the site. A retail sporting goods center has also been proposed. Extensive residential development, all along the South Platte River, has been suggested by many groups.

The extent to which uses outside the Higher Education Center site would impact the Center itself would depend largely upon the kinds of transportation facilities that are provided to serve the outside area. One of the most notable characteristics of this outside area is its relative inaccessibility, a result of its use as a railroad classification area with little need for vehicular access. As a result of this inaccessibility, it is inconceivable that any re-use, or more intensive use, could be considered for this site without accompanying major highway and street improvements. There are possibilities for a number of such improvements. One is the Market/Blake Parkway system previously discussed. This

arterial could be an important facility serving the area north and west of the Higher Education Center campus. Another on-campus street that is likely to be important is 8th Street. If the area northwest of the campus were to be developed, 8th Street would undoubtedly be a primary collector street serving this area. In the larger view, however, it appears almost certain that greatly improved access to the area northwest of Auraria will depend upon either a major new connection to I-25 or a connection to Speer Boulevard somewhere in the present viaduct section. The former is probably more likely than the latter. For instance, it might be possible to extend 23rd Avenue easterly across the South Platte River to serve the area. This extension would, in turn, connect to the existing 23rd Avenue diamond interchange with I-25. Another possibility for improved access exists through a major reconstruction of the Valley Highway in the section between Speer Boulevard and Colfax. This might be done in conjunction with an interchange between I-25 and the Market/Blake Parkway. At any rate, it is probable that an additional Platte River bridge or bridges would have to be constructed to serve this area adequately.

In summary, the following points are apparent:

1/ Redevelopment of the area outside the Auraria Higher Education Center will require relocation of the railroad operations presently there. Experience in other areas has shown that this relocation will not be a simple undertaking.

2/ If the area is developed for new uses without the provision of additional highway access improvements, there will be severe adverse impacts on the Auraria Higher Education Center site.

3/ Even if there were no Higher Education Center campus on the Auraria site, access to the area north and west of the railroad tracks is so poor that there would have to be access improvements in order to develop it.

4/ The most probable Auraria street systems relating to development of the area to the northwest are the Market/Blake Parkway and 8th Street. Neither of these street systems is heavily utilized for Auraria purposes and there would be adequate capacity in both for some additional use by the area to the northwest.

5/ The access improvement that would appear to have the greatest benefit to the railroad area would be a direct connection to I-25. This would require a new bridge across the South Platte River. One possibility for this might be an access highway and bridge leading to the existing 23rd Avenue-I-25 interchange.

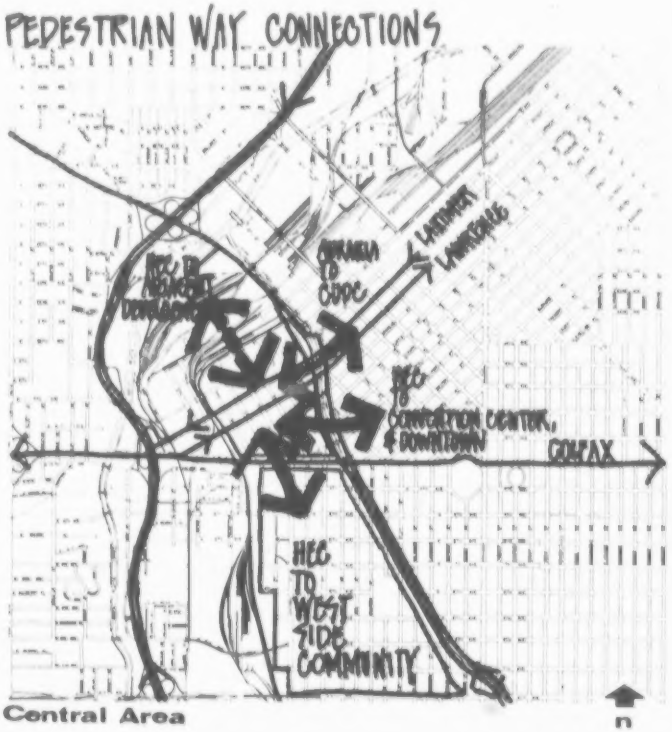
Two additional points are also strongly evident from the analysis of Auraria transportation requirements. First, the continuing development of lower downtown Denver, principally the Skyline Urban Renewal area, will require major transportation improvements. The Market/Blake Parkway and Speer Boulevard improvements were planned primarily in response to this need although they also benefit Auraria. Secondly, the transportation improvements proposed in conjunction with the development of the Higher Education Center are not unique to the Higher Education Center itself. They would be required for any urban redevelopment of the Auraria area. It would seem almost a certainty that such urban redevelopment of this land is inevitable even if the Higher Education Center should be located elsewhere.

RECOMMENDATIONS

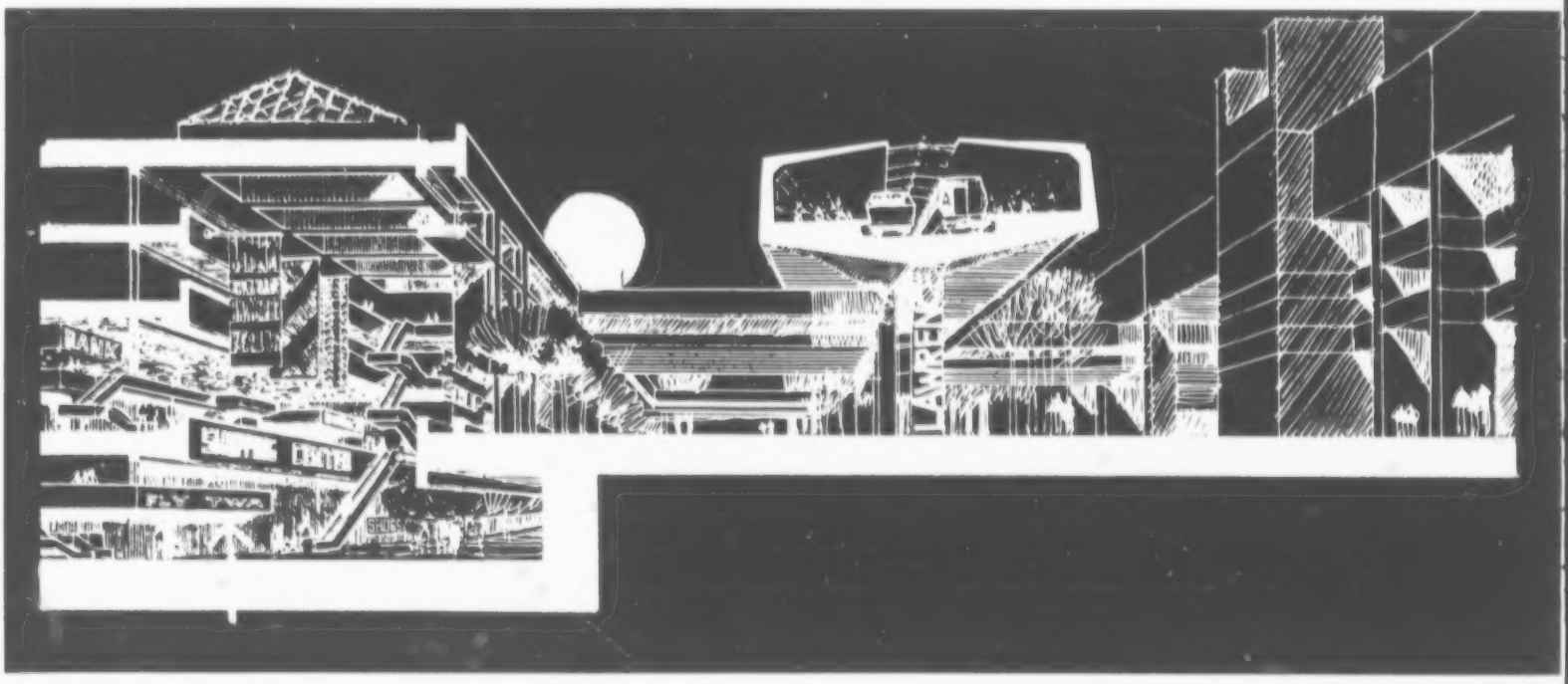
1/ It is important to anticipate the space requirements of a probable grade separated interchange betwen Market/Blake and Speer Boulevard. If this is a diamond type interchange (the most probable configuration), there will probably be some land takings west of the 13th Street Viaduct for a "collector-distributor" service road.

2/ Access to parking facilities along the Market/Blake Parkway should be planned as far west as possible to avoid congestion in the vicinity of the Speer Boulevard interchange.

3/ To avoid possible conflicts with morning rush hour traffic, it is recommended that 8:00 AM classes be reduced from 56% of peak campus attendance (5,700 students in 1976).



Central Area



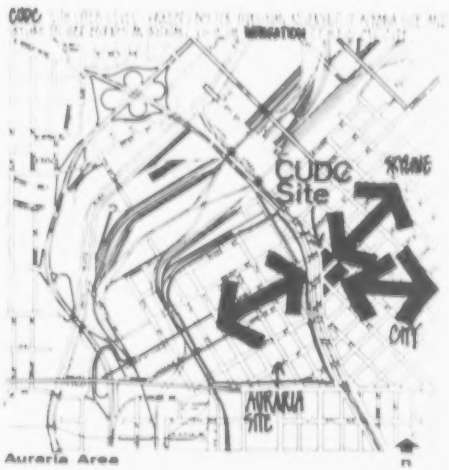
Pedestrian Circulation

While most students, faculty, staff, and visitors will arrive at and depart from the Higher Education Center campus through the media of vehicular transportation, a significant number will arrive and depart as pedestrians. This may be particulary true of the part-time student who is in employed in the Central Business District. In later years, increased pedestrian traffic may be generated between the Higher Education Center and related development to the west and north as the land use in these areas adjacent to the campus tends to develop in a manner related to the functions on campus.

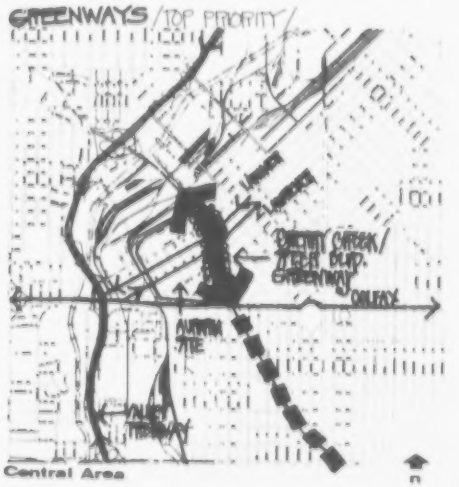
The planning response to this type of pedestrian traffic will be most pronounced in the area of elevated crosswalks and plazas which provide great separation for pedestrian and vehicular traffic patterns at points of crossing. These pedestrian-way connections can be handsome, visual expressions of the urban scene at Auraria. As such, the process of walking from one place to another can become an emotionally satisfying one as well as a safe and convenient event. This would be a pleasant change from patterns now existing in much of downtown Denver.

On-campus pedestrian circulation will be substantial. The driver will park his car in an appropriate parking area on the campus and from that point he will walk; the mass transit passenger will arrive at an on-campus station and becomes a pedestrian; those who enter the campus as pedestrians by crossing pedestrian-way connec-

Auraria Area



Auraria Area



Central Area

tions will continue on their way as pedestrians. Much of the route to their ultimate destination will be on the site away from buildings. The remainder will be within the buildings themselves. Therefore, coordinated pedestrian circulation patterns must be established between the site and the buildings. The walking times diagram illustrates the fact that walking at the Auraria Higher Education Center is dramatically different from walking on a more typical suburban campus. This campus is concentrated and distances are short. Based upon a walking speed of 300' per minute on a continuous straight line pattern, nearly every remote portion of the site is within 4 minutes of the geographic heart of the campus. Even with anticipated variations from straight line walking patterns and with possible delays of a minor nature caused by stop and go created by conflicts, walking times at the Higher Education Center are minimized.

It is interesting to note that CUDC becomes a pedestrian "front door" to the Auraria Higher Education Center. CUDC will very likely be directly connected to upper level pedestrian walkways which are planned for the Skyline Urban Renewal Project. Thus, the pedestrian fingers of the Higher Education Center begin to probe rather deeply into the community which it serves.

Environmental

Certain environmental conditions become FORM GENERATORS. To be sure, visual environment in the broad sense is of the greatest importance to the well-being of the Auraria Higher Education Center as an effective facility. Involved in this broad classification are such important elements as the relationship of the visual design of facilities to the urban scene which they occupy, the creation of a visual environment which will generate the proper emotional response from those who make use of the facilities, and the image which the Higher Education Center broadcasts to all who see it regarding the importance of the people who use it and of the programs which it contains. Beyond these broad statements, several specific environmental aspects have surfaced which bear discussion in this section of the report. They include such elements as greenways, landmarks, and views.

GREENWAYS

A city is made up of land which is covered with buildings and the open spaces between the buildings which are occupied by streets, parking areas, sidewalks, and — of great importance — environmental spaces. The City of Denver is beginning to give its urban environment a high priority position as it reconsiders open spaces in its urban fabric. These environmental spaces or greenways are beginning to form an interesting pattern near the Auraria site. As examples, the Cherry Creek/Speer Boulevard greenway is already an effective urban space in some areas; the Valley Highway has a number of opportunities to develop green spaces along its route, particularly at interchanges; DURA is undertaking the development of meaningful greenways such as the linear park in the Skyline

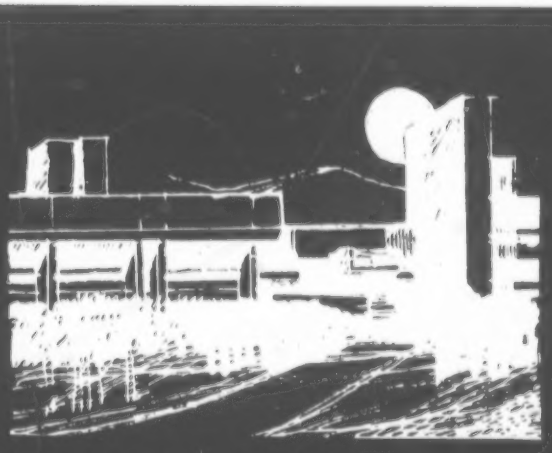
Urban Renewal Project; there is hope that the South Platte River will be developed into a beautiful and functional element within the City.

In addition to the green spaces among the buildings at the Auraria Higher Education Center and the grass physical education fields which are required by program, three major green areas should be considered at Auraria to enhance its campus and to make a very real contribution to the visual quality of the City. The top priority greenway at the Auraria Higher Education Center would seem to be the Cherry Creek Speer Boulevard land area. This heavily traveled street passes the Denver Country Club through a reasonably effective green space and continues by the newly constructed Denver General Hospital which opens an effective architectural space to the traveler then continues past the Convention Center and the Central Business District. The opportunity for making Speer Boulevard and Cherry Creek into one of the most effective urban green spaces in the Central United States is one worthy of real effort. As the Market Blake Parkway is developed, another real opportunity at creating an effective urban space presents itself. Where this Parkway passes Auraria, it will ultimately be entirely new construction presenting an excellent chance to create a visual space of the highest quality. Finally, the no-building zone already proposed for the Higher Education Center campus along Colfax offers an opportunity to provide beautiful vistas on this major street. This green space will be entirely on the site of the higher Education Center and will serve the health, physical education, recreation programs as well as the visual quality of the campus.

VIEWS

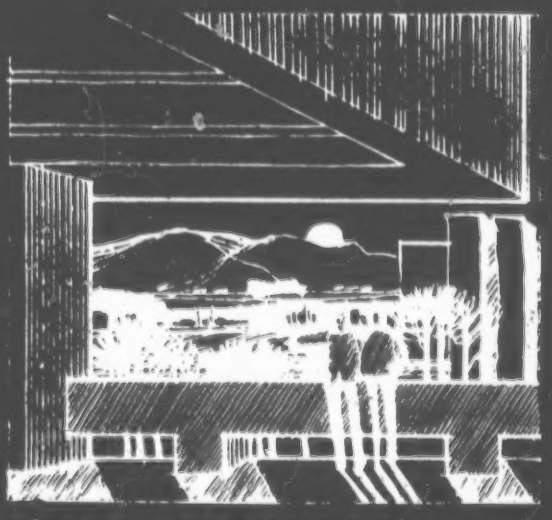
Two-way views must be respected at Auraria — the views toward the site and the views from the site. As one looks upon the Auraria Higher Education Center from beyond its boundaries, the Center stands as a visual indication of the position which education occupies in the City. In so doing it tells much about the quality of life in the Denver Metropolitan Area. The careful and sensitive design which must be developed for the Higher Education Center can be an effective blend of the form, mass, color, and composition of buildings and planting material. Sensitive grading and planting of the site can conceal visually undesirable aspects of the site such as automobile parking facilities in a very effective manner. This is only one of many ways in which the capable designer will add to the visual quality of the Higher Education Center as it is planned.

As one walks among the elements of the Higher Education Center, the skyline of Denver and the distant mountains may be drawn into the visual fabric of the Center itself. As buildings part these views may "explode" and enhance the experience of walking from place to place on campus. At other points along the walking path the buildings will frame smaller views of the campus surroundings and create a different emotional impact upon the pedestrian. Shorter vistas within the campus itself are equally exciting design potentials.

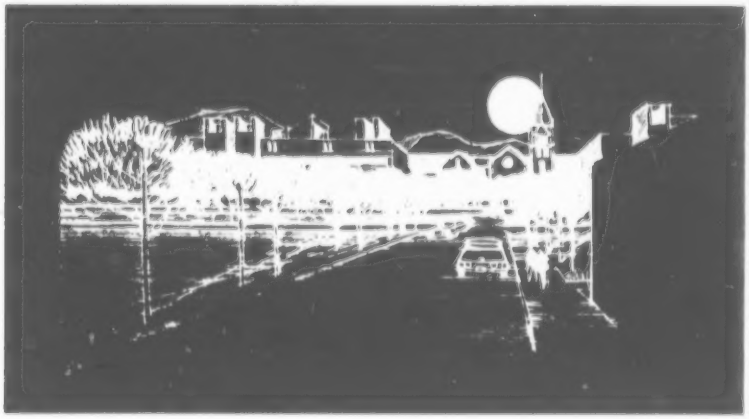


View of HEC from city

View of city from HEC



Framed views from HEC pedestrian way



HISTORICAL LANDMARKS

As historical buildings belong in the City, they also have a place of importance within the Higher Education Center. Design of new buildings at Auraria can provide a beautiful new setting for the historical buildings on site. Imagine a delightful European church square and contemplate the design opportunities offered in creating an outside space for people around St. Elizabeth's Church as it is framed with new buildings. Consider the possibilities of making the Tivoli Brewery into an exciting people-oriented facility with great and colorful interior spaces. Emmanuel Chapel could become a non-denominational worship center for the use of those who come to Auraria to learn.

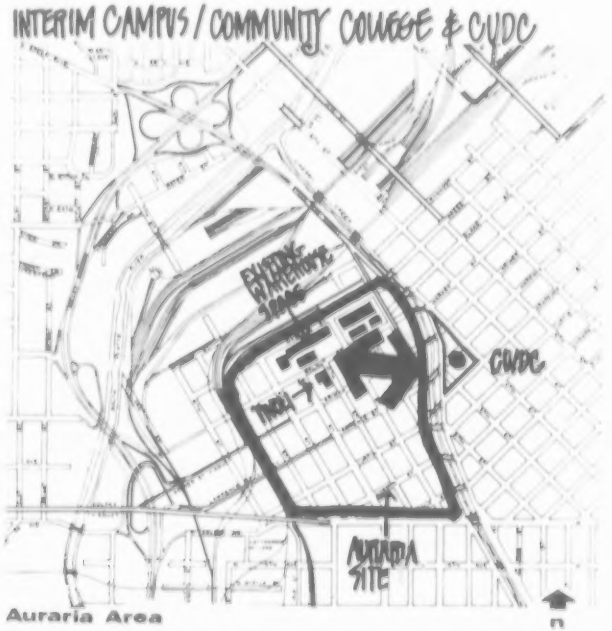
Interim Facilities

The University of Colorado/Denver Center and the Community College of Denver have examined certain existing buildings in the Auraria Urban Renewal Project site and hope to acquire them as interim-use facilities until permanent buildings can be constructed. Generally, the most likely candidates for interim use are buildings resting between Walnut Street and Wazee Street. Negotiations are presently underway to acquire these facilities for early conversion into educational space serving the two interested institutions.

This interim use becomes a strong FORM GENERATOR as land-use patterns are developed on the Auraria Higher Education Center site. Obviously, interim-use buildings cannot be phased out until the new space which will permanently replace them is constructed; therefore, new facilities must be built on land other than that occupied by interim-use buildings.

Land Commitments

As stated at the beginning of this section, the FORM GENERATORS create land-use commitments. After due consideration to the forces which shape the campus, the land commitment map cross page has resulted. It becomes one of the strongest FORM GENERATORS of all. Master plan drawings contained in the next section of this report are based upon the land commitments shown here.



4/Site Master Plan

General

A site master plan must be a flexible framework for growth. In a sense, change is the name of the game. As our society changes, it is inevitable that the nature of the city will change, educational content and techniques will change, modes of transportation will change, people involvement in the planning processes will change, and all aspects of the world in which we live will be dynamic. Still, when we construct a building we make a long-term commitment related to the use of the land upon which the building has been placed. This commitment can be converted from brick, steel, and glass into dollars very readily when one considers the consequences of removing the building from the land which it occupies in order to convert the land to other uses. Land development for green spaces and parking facilities represent a much shorter range commitment for land use. Because change will inevitably exist — and because commitments still must be made — great care is essential in effective land-use planning.

The Site Master Plan, represented by diagrams in this section of the report, has a basic flexibility which will permit major land-use patterns established for the Auraria Higher Education Center to react effectively and economically to change. Several examples of this kind of flexibility may be pointed out. First, although approximate dates may be established for the completion of major changes to the street network surrounding and passing through the Auraria Higher Education Center, there is no way to know precisely when or even whether these changes will actually be accomplished. Thus, it is necessary for the Long-Range Plan to be developed in a manner which will permit the facilities of the Higher Education Center to respond to varying configurations of the street network. Then too, who can say that enrollment will reach the maximums anticipated or who will say that it will not surpass anticipated maximums? Again, flexibility must come to the rescue and provide the ability for less or more building space to be constructed than presently anticipated. Will the University of Colorado's Denver Center grow to a point which exceeds its ability to acquire land east of Speer Boulevard/Cherry Creek or will it be necessary for CUDC to "leap frog" the Cherry Creek/Speer Boulevard divider in order to build facilities on the Auraria site itself? Who can say with certainty that effective mass transit will be available within any given time frame? Obviously, this occurrence bears heavily upon the type and extent of automobile parking facilities to be constructed on the site. Uncertainties such as these require that a flexible master plan be created at the outset and call for a program of continuing re-evaluation and adjustment of land-use patterns to assure the Long-Range Site Master Plan will exist in a dynamic state.

The diagrams in this section make abundant provisions for change. In order to illustrate the capability of the Long-Range Site Master Plan to react to changing conditions, many aspects of the plan are presented in two configuration forms on the campus site drawings. The drawings are based upon the configuration of the campus in the base year of 1976 for the most part. At this point in time, the population and programs of the Higher Education Center will call for full utilization of the Auraria Urban Renewal Project land. Land-Use Plan Configuration/1 assumes limited street improvements and calls for the use of some interim facilities to continue into the base planning year of 1976. Land-Use Configuration/2 assumes that major street improvements will be accomplished by the base planning year and that all space on site occupied by the institutions at that time will be permanent newly constructed space. Obviously, the plan is capable of reacting to "middle ground" circumstances somewhere between Configuration/1 and Configuration/2. These middle positions are not indicated in the drawings but, with continued surveillance over the Long-Range Site Master Plan as time passes, they may easily be incorporated into the pattern of development for the campus.

Each of the Site Master Plan drawings in this section deals with a specific planning response to the FORM GENERATORS. Although the drawings are presented separately for the purpose of clarity, the planning process involved the consideration of each Master Plan element as a part of the functioning whole. The contents of one drawing and its related text interrelate with each of the other planning elements as reflected by the drawings and text describing them individually. The order of presentation of these drawings has no particular significance other than an attempt at clarity of presentation.

Building Zones

Five land-use zones on the campus will contain the buildings required for the Auraria Higher Education Center. They relate to CUDC, Metro, CCD, Shared-Central, and Shared-Peripheral. The Site Master Plan identifies the boundaries of these zones and deals with relationships between them. Each institution will be responsible for the long-range master planning of its own facilities within the boundaries of its individual zone. As an example, Metro, along with its project architects, is well under way with Schematic Planning of its buildings. During this process, a continuing dialogue has been established between Metro's project architects and LKA in order to permit Metro to relate its facilities into the context of the total Higher Education Center facility. This may be accomplished only through a procedure of continuing communication between planners.

Land coverage ratios and building densities require careful consideration when any building complex is constructed. On an urban site where land is somewhat limited, this is particularly true.

Because the very real possibility of enrollment and/or program growth exists at each of the institutions in the Auraria Higher Education Center, planning for all land-use zones on the campus has been undertaken on the basis that the Higher Education Center will ultimately grow to the maximum size projected in previous portions of this report. The planning alternatives — future expansion of the campus land holdings immediately adjacent to the present site to permit facilities to grow horizontally or imposition of a strict maximum level on enrollment and educational program — would appear to be either totally unacceptable or to limit the potential for flexibility in planning to the point that they are not realistic candidates for further consideration. Beyond that, the size of the Auraria Urban Renewal project site is adequate to permit this kind of forward-looking planning to take place without causing it to inflict hardship upon the design and constructon of facilites.

Considering the building zones at maximum predicted development, the following land-use density data will be useful in visualizing the characteristics of the structures which may be built within the five building zones.

CUDC/BUILDING ZONE

CUDC plans to put some 975,000 gross square feet of building space on a land area of approximately 4.5 acres. Based upon a land coverage of 80% — which is similar to the land coverage anticipated for the Skyline Urban Renewal Program in the area of the Denver Center — the average height of buildings to be constructed by the Denver Center will be 6.22 stories. Obviously, as project architects consider building massing, some portions of the CUDC facilities will exceed the average height. Other portions will be much lower. This land-use density would seem to be perfectly appropriate for the location which CUDC occupies. Preliminary building design concepts studied by the University are compatible with the projected land-use density.

METRO/BUILDING ZONE

Mertopolitan State College will ultimately construct some 1,877,000 gross square feet of buildings on its 19.5 acre land zone. If a 50% coverage factor (building footprint) is used, the average building height for Metro would be 4.42 stories. This does not represent an exceedingly high density use of the land zone set aside for Metro and, as a result, should permit substantial flexibility to the designers of buildings for Metropolitan State College.

CCD/BUILDING ZONE

The Community College of Denver projects approximately 480,000 gross square feet of building area will be required if it is to reach maximum enrollment and program levels projected earlier in this report. If it covers 50% of its 7 acre land area, the average height of these buildings will reach 3.15 stories. This is considered particularly appropriate for the Community College since much of its building space will be related to occupational education and will contain much heavy machinery imposing severe loadings on floor systems, thus, suggesting the economies of low-rise buildings. The low-rise building concept is further enhanced when one considers the delivery and material handling frequency required by occupational education facilities. Generally, one would expect the academic buildings at CCD to exceed 3.15 in height or perhaps to be placed above space used for occupational education. The land area provided for the Community College of Denver seems adequate and appropriate to serve its function in the urban context of its site.

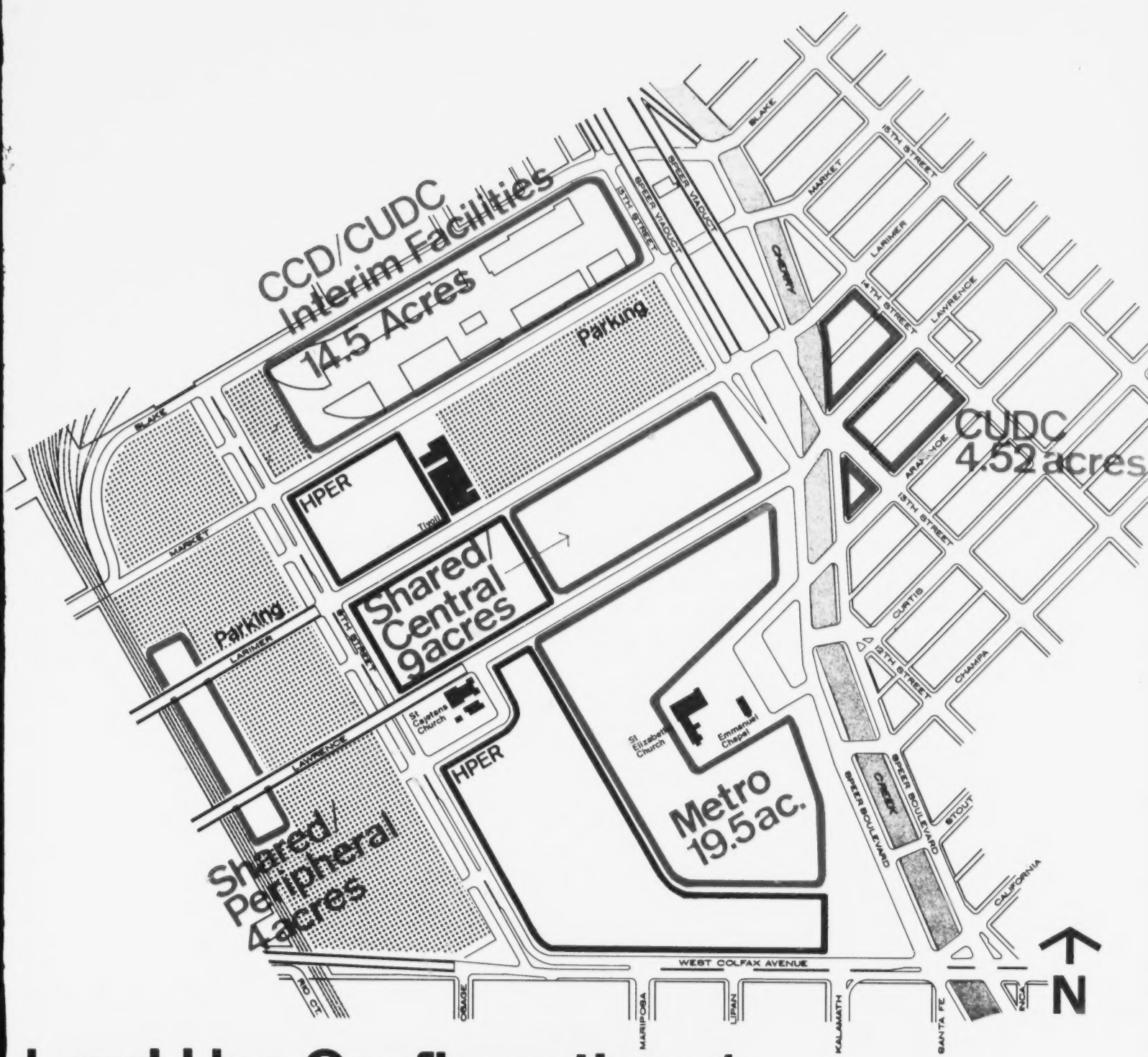
SHARED — CENTRAL/BUILDING ZONE

The Central Shared Facilities will place approximately 1,131,500 gross square feet of building area plus 800 automobile parking spaces in a parking structure on 9 acres of land using a land coverage factor of 80%. This will require an average building height of 3.6 stories above a building base not to exceed 1 story in height which will contain the automobile parking spaces. The Central Shared Facilities are visualized at this point to have a megastructure building design concept. This is considered to be especially appropriate for a facility of this type and will offer exciting design possibilities.

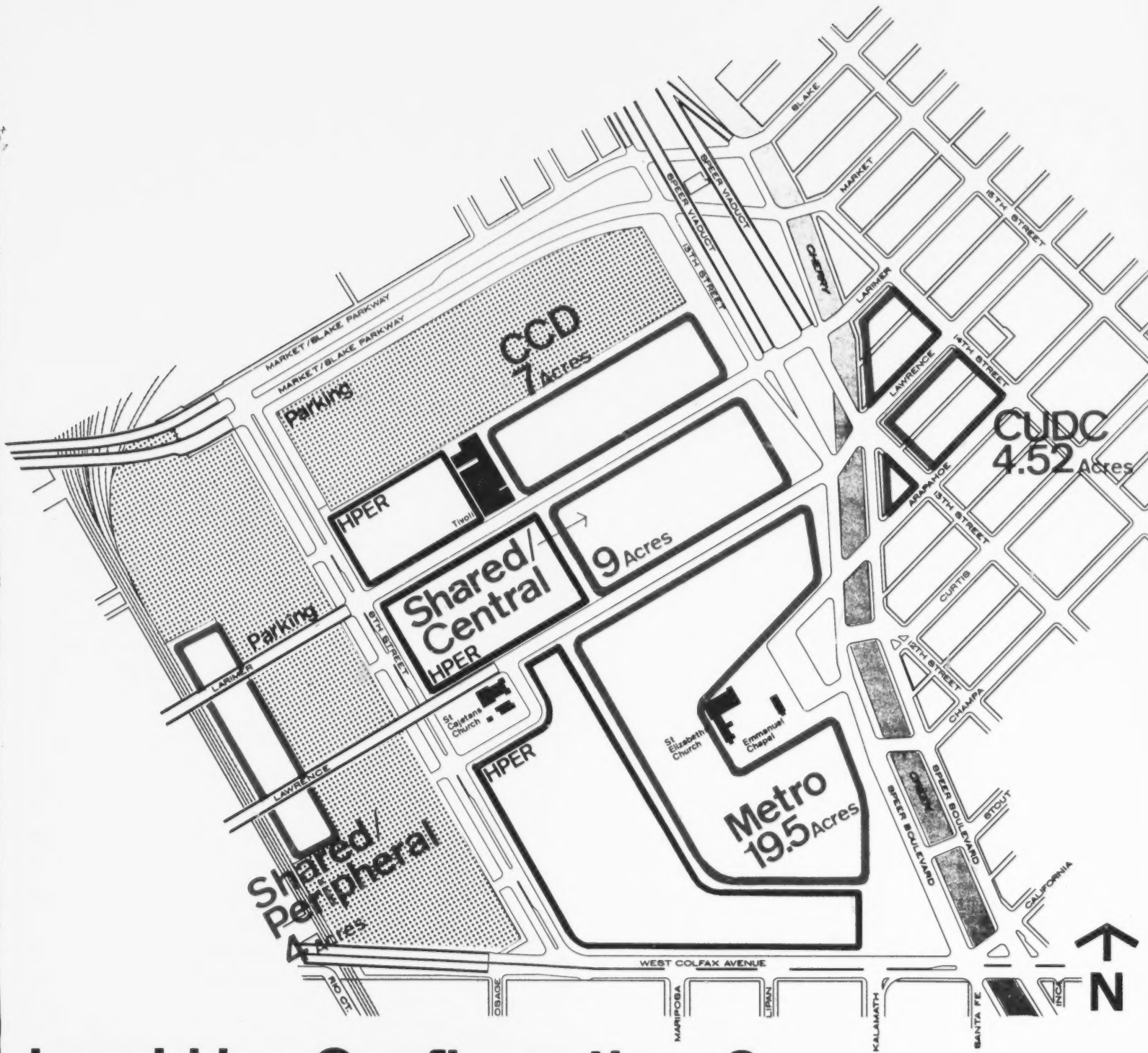
SHARED — PERIPHERAL BUILDING ZONE

This 4 acre land area will ultimately accommodate 196,000 gross square feet of building area at a 60% land coverage factor. The resultant average building height is 1.9 stories. Low-rise buildings are considered to be appropriate from the economical standpoint for the space-use classifications projected for this facility. Further, the 40% of open space which will exist in this land area will be required for Physical Plant and vehicle yards.

Land-Use Configuration No. 1 indicates the location and size of the interim land-use zone occupied primarily by CCD but in part by CUDC. Metro and the Shared Facilities — both Central and Peripheral — are indicated as being within their permanent building zone. On Land-Use Configuration No. 2 all components occupy facilities within their permanent building zone. It is interesting to note that the relationships between the land-use zones are basically similar either way. Thus, the integrity of the Master Plan is not violated through the use of interim facilities. Further, it should be pointed out that construction of permanent facilities within the permanent building zone for CCD can take place without interfering with facilities within the interim building zone. The transition from interim to permanent facilities should not be a difficult one.



Land Use Configuration/1



Land Use Configuration/2

HPER/Environmental Zones

The three major land consumers at Auraria are the Building Zones, the HPER/Environmental Zones, and the Parking Zones. Each of these play a large part in the functional characteristics of the Higher Education Center. This portion of the Site Master Planning section directs itself toward the HPER/Environmental Zones.

Health, Physical Education, and Recreation (HPER) programs in an urban institution differ somewhat from programs offered on the traditional suburban campus. Part of this is due to the fact that the urban campus has a somewhat different kind of student whose needs in this program are not entirely similar to the needs of the student attending a less urban institution. It is generally believed that a higher proportion of the Health, Physical Education, and Recreation program offered at Auraria will be in interior space rather than exterior space. This conclusion is reached based upon knowledge of student needs as well as knowledge of site limitations. HPER Land Zones indicated on the campus plan in this section cover a total of 27.5 acres. For the most part, these zones will be grass playing fields with appropriate markings and equipment. Within these predominately grass areas will also be paved game courts, paved pedestrian sidewalks, and areas of trees and shrubs for environmental purposes.

Within the general category of environmental spaces on the Auraria Higher Education campus are the street greenways, the historical landmarks, and on-campus green spaces landscaped for visual purposes.Street greenways at Speer Boulevard/Cherry Creek and Market/Blake Parkway areas were discussed in Section 3 of this report. A minor greenway consisting of grass-surfaced earth berms and trees exists along 8th Street as it passes through the campus. The landscaped berms (or mounded areas) are visualized to be located between major streets and parking areas to partially conceal the "sea of automobiles" from view. Sensitive treatment of landscaped berms can do much to enhance the visual quality of the Center at a minimum outlay of funds.

Environmental green spaces also exist at the sites of the historical landmarks. The St. Elizabeth's Church site opens beautifully from the Speer Boulevard/Cherry Creek greenway creating magnificent vistas from the Central Business District as well as from Speer Boulevard. The buildings of Metropolitan State College provide a sense of enclosure to the St. Elizabeth's Church site and form an effective background for the church structure itself. In order to free other portions of the site and to enhance the meaningfulness of the area around St. Elizabeth's Church, the Emmanuel Chapel building has been relocated from its present site to this new environmental space. The Site Master Planning Consultants recommend that this area be treated in the nature of a European city square combining paved areas for people circulation and landscaped areas for environmental softness and warmth. Automobile parking, which is essential to the function of St. Elizabeth's Church, may again be concealed by the use of earth sculpture in the form of softly flowing landscaped mounds.

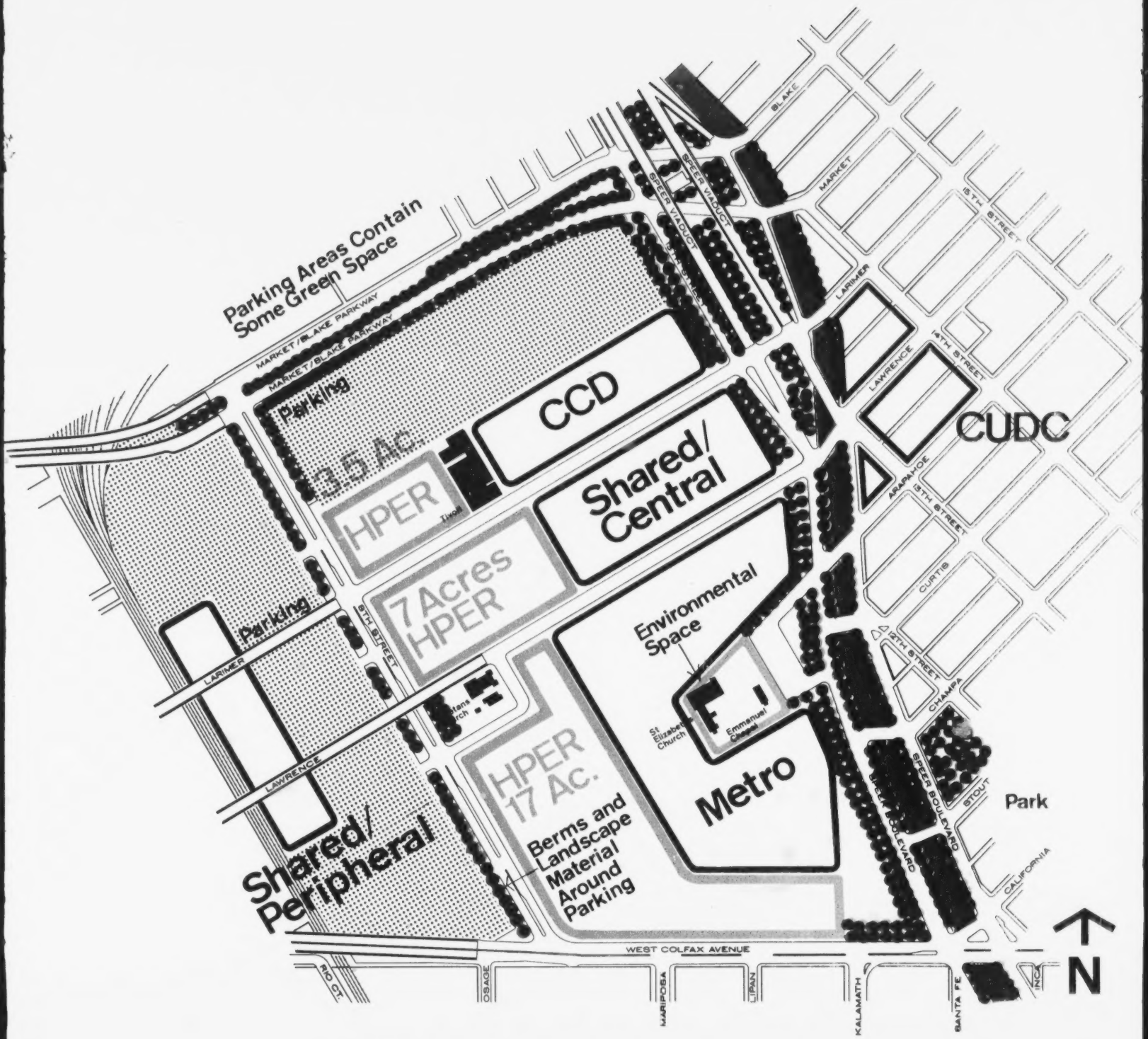
The area of the site which contains St. Catejan's Church and Rectory is also to be treated as a landscaped environmental area much in the same manner as that occupied by St. Elizabeth's Church. In this case, however, St. Catejan's Church occupies an open green area much in the form of the mission churches of California or the old New England church. Again, careful handling of landscaping, blended with some limited automobile parking immediately adjacent to the church itself, should serve to enhance the visual characteristics of this religious structure.

Certain areas of the Auraria Higher Education Center site will exist as purely environmental spaces. The building zones are set back slightly from Speer Boulevard to permit the installation of landscaped green spaces in order to give the buildings an appropriate visual setting. Within the building zones themselves, it is expected that environmental areas will be planned, many of which will be extensions of the green areas at the edges of the building zones. Thus, the campus is tied together in a meaningful way visually making it an appealing place indeed.

The considerable expanse of paving in parking areas should be broken by occasional landscaped spaces. Computations of the number of automobiles per acre contained in another portion of this section allow for the planning of green spaces within each of the parking areas.

It is interesting to note that the magnitude of green space which must be provided in an urban campus such as the Auraria Higher Education Center is substantially less than that provided at the suburban campuses. This is one of several instances where the urban campus offers real construction and operating economies because of its closely knit facilities. Another instance of where this geographic proximity offers substantial economy is in the matter of energy distributon which will be discussed later in this report.

Much of the visual quality of the Auraria Higher Education Center will depend upon the sensitive planning of its HPER/Environmental areas. Since few significant differences in green spaces exist between Land-Use Configuration/1 and Land-Use Configuration/2, a campus plan drawing for Configuration/2 should be adequate to illustrate the nature of these spaces as conceived in the Long-Range Site Master Plan.


Parking Areas Contain Some Green Space
MARKET/BLAKE PARKWAY
Parking
3.5 AC.
HPER
CCD
Shared/ Central
CUDC
7 Acres HPER
Parking
LARIMER
LAWRENCE
8TH STREET
Environmental Space
St Elizabeth Church
Emmanuel Chapel
HPER 17 Ac.
Berms and Landscape Material Around Parking
Metro
Shared/ Peripheral
Park
SPEER VIADUCT
BLAKE
MARKET
14TH STREET
ARAPAHOE
CURTIS
CHAMPA
SPEER BOULEVARD
STOUT
CALIFORNIA
WEST COLFAX AVENUE
RIO CT.
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
N

Parking Zones

Land-use zones for automobile parking are indicated in both Configuration/1 and Configuration/2. Except for the parking of 800 automobiles in structured facilities within the land zone of the Shared/Central Facilities, automobile parking in 1976 is considered to be entirely on surface parking lots. The Consultants believe this to be by far the most economical manner to accommodate the parking load imposed by the Higher Education Center.

On Land-Use Configuration/2, 42.5 acres of surface parking lots are provided in the parking land-use zone. This land area will accommodate 5,280 automobiles and will make provision for the space required by the parking stalls themselves plus vehicular circulation space and strategically located landscaped areas. The parking zones are primarily at the north end west edges of the site. Their location has been predicated upon the functional relationships required by automobile circulation as well as the relationships called for among the building zones and the HPER/environmental zones. As a by-product of these functional relationships, the parking zones were located in the short-term flood plain of the South Platte River, thus placing primarily low-cost facilities within the potential flood area should it remain on the site for a short-term after completion of Higher Education Center facilities. As discussed earlier in this report, this procedure tends to give an added element of insurance against the outside possibility that some flooding of the site could happen prior to the completion of flood prevention facilities upstream on the South Platte River.

Automobile parking for 800 vehicles is provided within the building zone for the Shared/Central Facilities. It is likely this parking will be at ground level and will be below the plaza/pedestrian level in the Shared Facilities megastructure. The structured parking provides close-in parking facilities essential to meet the demand of a limited number of drivers using the Higher Education Center who are willing to pay a higher parking fee for the convenience of short-term, close-in facilities.

Configuration/1 is greatly similar to Configuration/2, the primary difference being in relationship to the interim-use buildings for CUDC and CCD. It is likely that the permanent site of the CCD Building Zone may be used as an interim parking facility until construction of permanent CCD buildings is undertaken. This would provide reasonably close-in parking for CUDC and CCD until the interim-use buildings between Walnut and Wazee are phased out permitting the construction of the surface parking area projected in that area after demolition of the interim-use buildings.

CUDC also projects the possibility of using parking facilities provided in a structure which the Denver Urban Renewal Authority expects to construct on the land area bordered by Speer Boulevard, Arapahoe Street, 14th Street, and Curtis Street. This large multi-level automobile parking structure will be immediately adjacent to the southeast boundary of the CUDC site, thus providing close-in parking for those who require it and are willing to pay for it.

The number of automobile parking spaces to be provided on campus at the Auraria Higher Education Center was computed by multiplying certain automobile-use factors times the number of students, faculty, staff, and visitors projected to be on the campus at peak load periods and then adding an appropriate allowance for overlapping of demand for spaces caused by incoming and outgoing traffic. As an example of the overlapping, a student arriving for an 11:00 o'clock class may find that students departing from a 10:00 o'clock class have not yet vacated their parking space. Automobile-use factors in this study are derived from standards established by many urban related campuses which already exist. These standards have been modified as a result of automobile-use polls and inquiries made at Metropolitan State College. In order to relate them to specific local patterns, further adjustments have been made related to anticipated class schedules, at the Higher Education Center, which will be designed to impose the smallest reasonable automobile load to the off-campus and on-campus street networks at the times of peak load created by the Central Business District and other non-campus related traffic flows. Since the Auraria Higher Education Center offers a substantial evening program, as well as its daytime program, effective use of parking facilities will be made during evening hours and daytime hours. Table 1 projects the maximum parking requirements based upon the percent of student auto drivers determined by the Metropolitan State College survey conducted in 1969. This indicates the maximum parking spaces required in daylight hours will be 7,022 and during the evening will be 6,450.

TABLE 1

PROJECTED 1976 AURARIA PARKING REQUIREMENTS BASED UPON 1969 PERCENTAGE OF AUTOMOBILE DRIVERS

Time	Students on Campus (1)	Student Parking Spaces Required (2)	Maximum Parking Spaces Required (3)
8:00 to 9:00 AM	5,700	3,150	- - - -
9:00 to 10:00 AM	10,100	5,600	7,022
10:00 to 11:00 AM	9,100	5,050	- - - -
11:00 to 12:00 N	9,500	5,270	- - - -
12:00 to 1:00 PM	7,700	4,270	- - - -
1:00 to 2:00 PM	7,800	4,330	- - - -
2:00 to 3:00 PM	8,500	4,710	- - - -
3:00 to 4:00 PM	5,300	2,940	- - - -
4:00 to 5:00 PM	2,200	1,220	- - - -
5:00 to 6:00 PM	6,400	3,550	- - - -
6:00 to 7:00 PM	10,300	5,700	6,450
7:00 to 8:00 PM	9,600	5,340	- - - -
8:00 to 9:00 PM	5,500	3,050	- - - -
9:00 to 10:00 PM	4,900	2,720	- - - -

(1) Data from the Commission on Higher Education January, 1970

(2) Computed by the following formula: Students on campus times the percent of students driving automobiles (44.2%) times overlap factor (1.25)

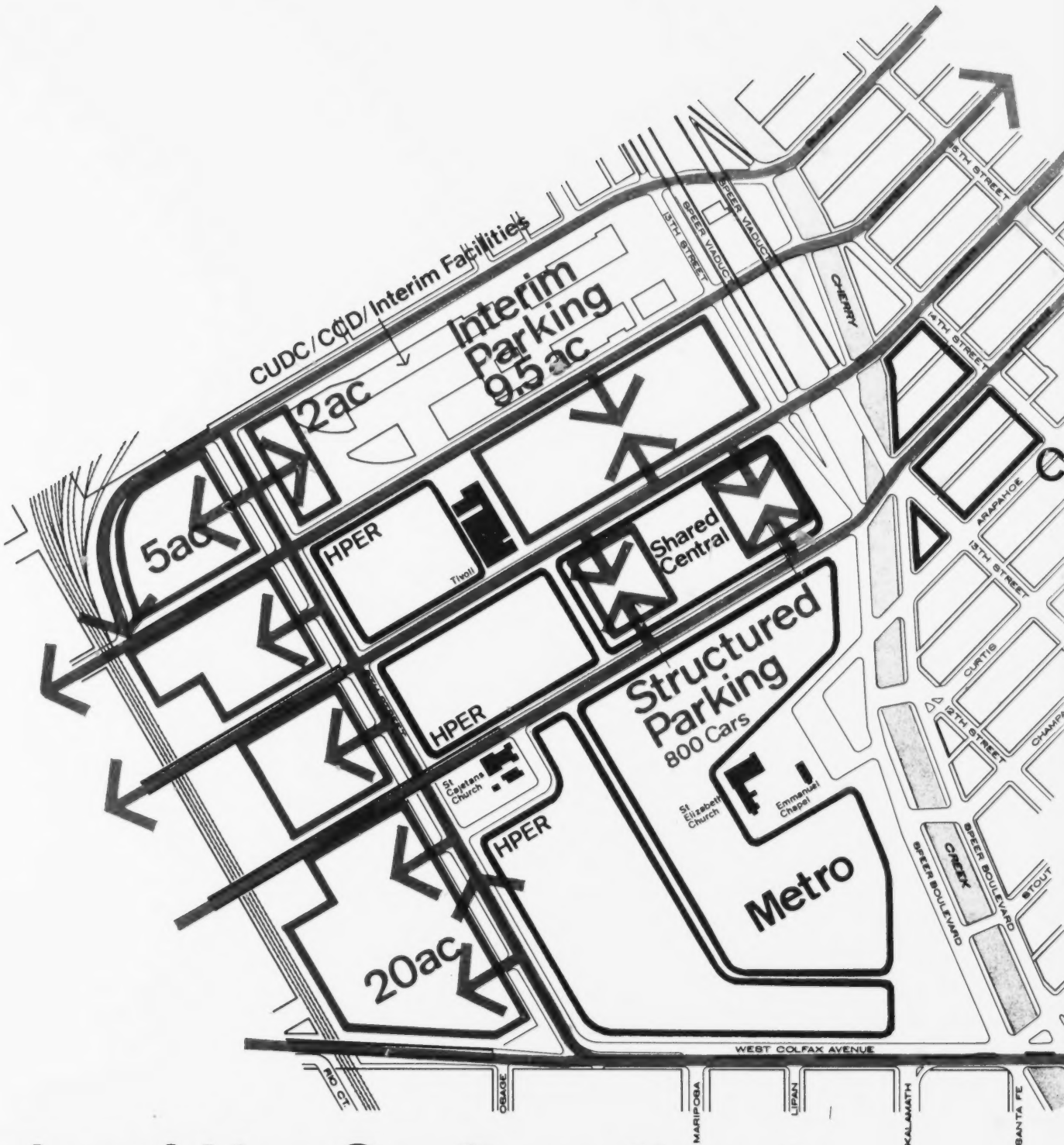
(3) Computed by adding spaces required for faculty, staff, and visitor vehicles to student vehicles already computed. Data on faculty, staff, and visitor parking requirements were obtained from Lamar Kelsey & Associates, January, 1970.

The transportation consultants consider it to be likely that substantially heavier use will be made of the mass transit systems as time goes by. Table 2, therefore, indicates daytime parking demand based upon "improved" transit-use rates and "strong" transit-use rates. The 6,080 parking spaces actually provided by the Site Master Plan assumes that the percentage of student automobile drivers will rest somewhere between 1969 levels and the so-called "improved levels" in 1976. Table 2 also shows parking space demand at maximum development of the Higher Education Center Facilities. The likelihood of "strong" use of the mass-transit system by 1990 is substantial. If this is not achieved, it is always possible to increase the number of automobile parking spaces at the Auraria Higher Education Center through the process of constructing multi-level parking structures for a larger percentage of the vehicles than indicated on the Site Master Plan drawings.

TABLE 2
PARKING SPACE REQUIREMENTS

Percent Student Auto Drivers	Number of Parking Space Required 1976	Maximum
44.2% (1)	7,022	10,450
35.0% (2)	5,850	8,200
25.0% (3)	4,150	6,250

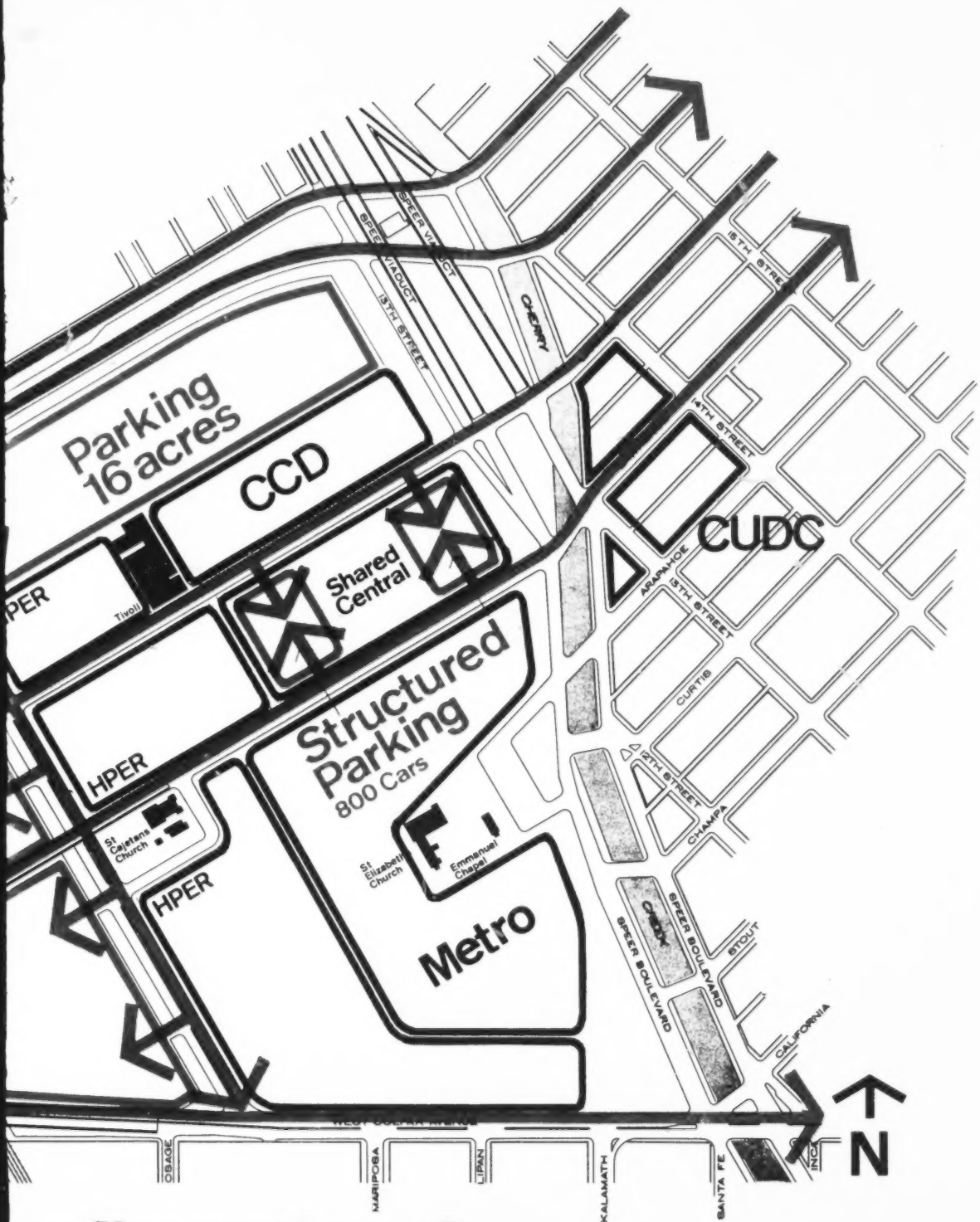
(1) Present (1969) Rate (Metro survey)
(2) "Improved" Transit Rate
(3) "Strong" Transit Rate



Land Use Configuration/1

e Configuration/1

Land Use Configuration/2



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Street Networks

On-site street networks provide for both primary and secondary vehicular circulation. The term "primary on-site vehicular circulation" deals with all vehicular movements on the Auraria site except those of service and emergency vehicles. This category would include traffic having a destination or origin on the Auraria Higher Education Center site as well as traffic passing through the site and not related to the Higher Education Center in any way. "Secondary on-site vehicular circulation" is made up of a system of streets on the Higher Education Center site which are necessary in order to provide for service, maintenance, and emergency vehicles only.

Through traffic, not related to the Higher Education Center, will use the street network at the perimeter of the site and will pass through the site on Larimer Street, Lawrence Street, 8th Street, and, ultimately, on the Market/Blake Parkway which will be partially on land defined as being included in the Auraria Urban Renewal Project. For traffic having a destination at the Higher Education Center, or originating from the Center, the primary functions of the internal street network are to provide vehicular access points into the campus from the arterial access routes and to facilitate movement to and from parking.

For several reasons, it was considered wise to investigate the possibility of using existing streets — perhaps considerably remodeled and improved — in lieu of entirely new streets to satisfy the needs of primary circulation. In the first place, the cost of using existing streets is likely to be substantially lower than the construction of new streets and, secondly, a number of utilities exist within the pattern of the present street network and if these streets were removed it would be necessary for easements to remain in their place.

After detailed study of the transportation problem, LKA's transportation consultants Alan M. Voorhees & Associates, working in concert with representatives of the City of Denver and consulting with representatives of the Colorado Department of Highways, reached a series of conclusions in connection with the on-campus primary street network. LKA coordinated those conclusions with the Site Master Plan and the resulting street network is exceedingly functional, has a high degree of flexibility, and does indeed make use of existing streets for the most part.

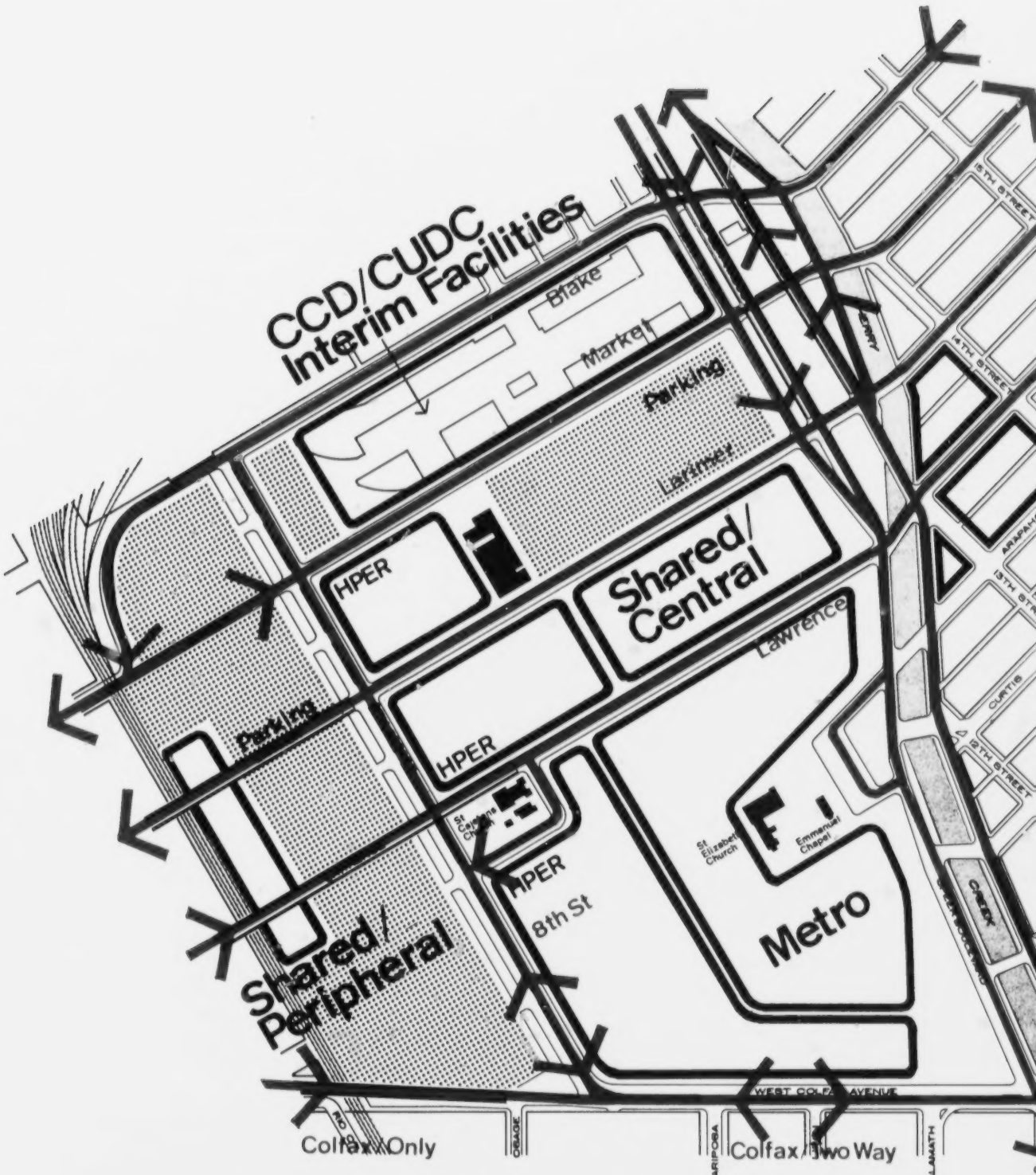
Two campus plan drawings describe the on-site vehicular circulation/primary. Configuration/2 describes the system as it may ultimately be upon completion of hoped-for improvements. The new Market/Blake Parkway has been indicated at the north boundary of the site with the westbound lane generally being in the present Wazee Street right-of-way. The eastbound lane has been constructed on Auraria Urban Renewal Project land. A landscaped median would be designed for the Market/Blake Parkway. For traffic approaching the campus in the westbound lane of the Parkway, two left turn storage lanes would be installed to permit entrance into the campus on 8th Street. A diamond intersection would be constructed between the Market/Blake Parkway and Speer Boulevard. Speer Boulevard is indicated in its realigned location permitting a portion of the CUDC site to extend to the bank of Cherry Creek. The westbound viaduct for Colfax Avenue has been indicated as completed, thus, removing westbound Colfax traffic from 8th Street. Eastbound traffic on Lawrence Street will enter the site on a right-turn loop leading to 8th Street. 8th Street will have a two-way flow of traffic, a median strip, and left turn storage lanes.

Configuration/1 is much the same as Configuration/2 except Market/Blake exists on the Walnut and Wazee rights-of-way in an interim configuration awaiting construction of the proposed Market/Blake Parkway. This configuration also indicates westbound Colfax traffic entering the site at 8th Street and continuing westward on Larimer as it is presently. While it is hoped that the Colfax Viaduct can be completed at an early date, thus removing this traffic from the campus, it is obvious that the street network will tolerate delay of the completion of the viaduct project without requiring any significant design change in the Site Master Plan. Of course everyone will benefit from the construction of the westbound Colfax Viaduct. In 1969, the City and County of Denver requested funding of this viaduct from the State Highway Commission. This request was a renewal of requests of several years standing since the present routing has always been considered to be an interim improvement. This requested improvement cannot be charged to the Higher Education Center. It has long been planned to provide better access to the Central Business District.

It should be noted also that the Chief Traffic Engineer for the City and County of Denver wrote the following in connection with the Market/Blake Parkway on December 5, 1969. "The interesting thing about this concept is that we are proposing a system which we feel can be built with anticipated funds but also the facility is one which will provide direct service to the Auraria site whereas Skyline Freeway did not; thus, perhaps a portion of the cost of this particular project should be earmarked for the Auraria site. Again, I emphasize that with or without the Higher Education Center this proposal is needed to provide adequate traffic service for the increased density upcoming on the Skyline Urban Renewal Project." In that same letter the following was written. "In conclusion, we feel that the proposals currently submitted in the vicinity of the Auraria site are relatively modest and our capacity calculations indicate that they can provide the degree of service which projections for the Higher Education Center indicate must be served. They have the advantage in addition of serving a much broader base than just the Higher Education Center. In fact, as I have indicated in the text above, most of them were proposed prior to the Auraria site concept and will be needed for improved downtown access whether or not the Auraria site is chosen for the Higher Education Center. We do believe that even if the site for the Center were to be located elsewhere, essentially, the same access demands will develop over a period of time at the Auraria site as it redevelops to higher density commercial uses."

At the CUDC site, the total existing primary street network will be left intact. It is considered to be a necessary element in the flow of vehicular traffic in the Central Business District and the Skyline Urban Renewal project.

Secondary on-site vehicular circulation will take place on street networks which exist totally within the building zones. These networks which provide for service, maintenance, and emergency vehicles will be planned by the architects and planners who are retained to provide services for CUDC, Metro, CCD, and the Shared Facilities. Generally, this secondary system within building zones will include controlled access streets supplemented by portions of the sidewalk system upon which programmed service and emergency runs may be made. The secondary system must be planned in a manner which will properly relate it to the primary street network.



Land Use Configuration/1

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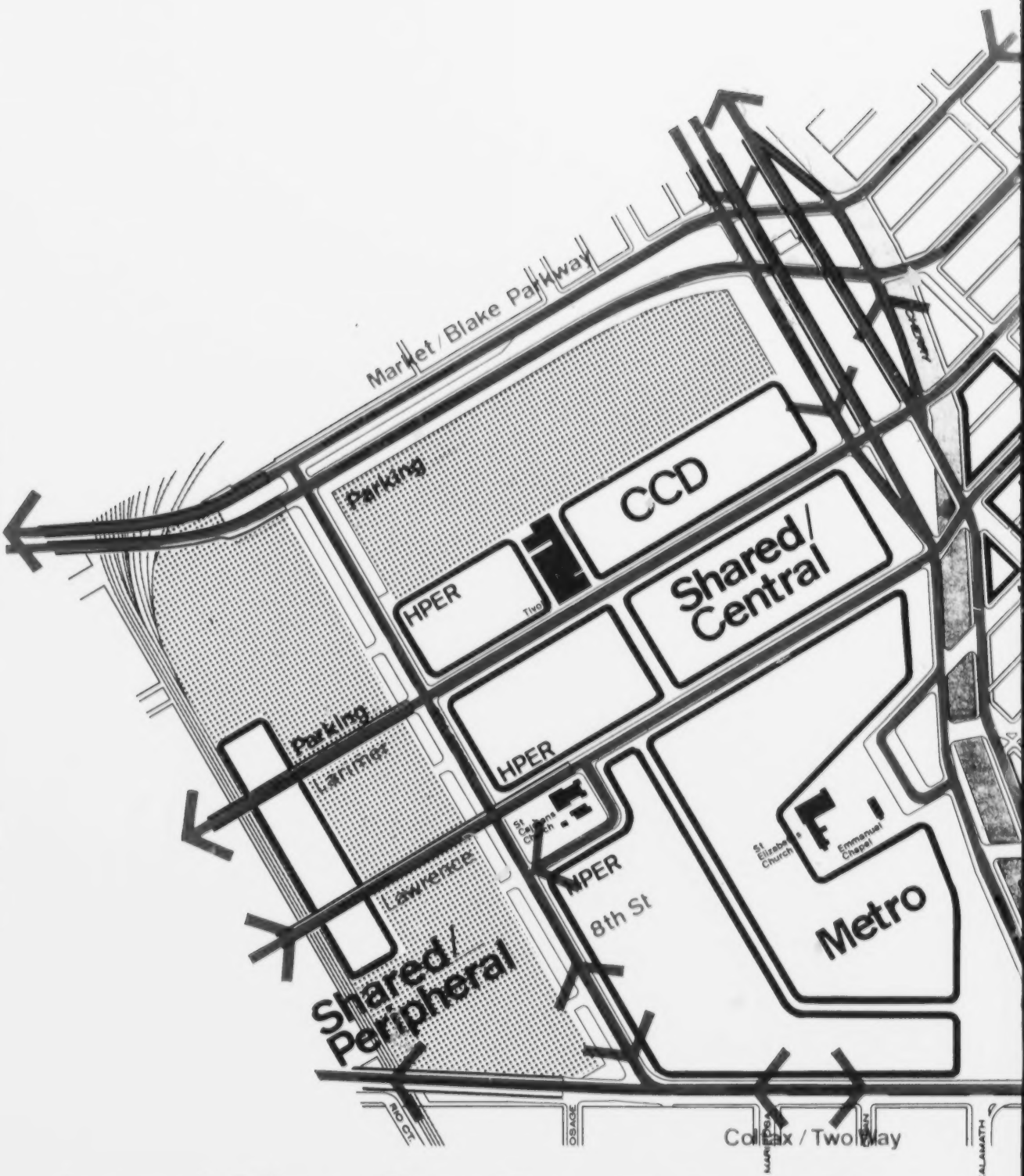
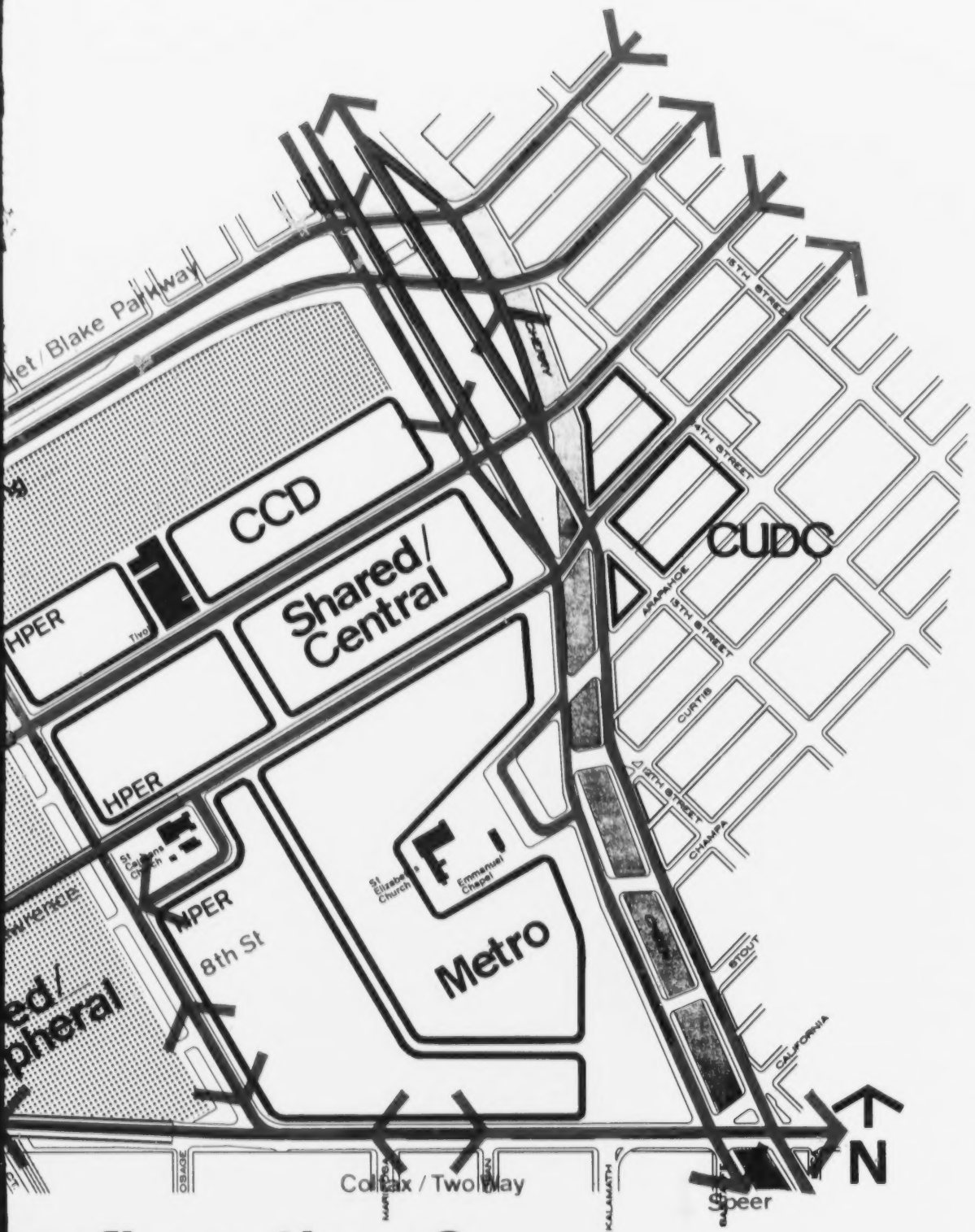


Land Use Configuration / 2



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Mass Transit

Alan M. Voorhees & Associates, Inc., the transportation consultants for this project, have been involved in a number of transportation studies for the Denver Metropolitan Area in recent years. Because of this, they are well acquainted with the nature of the area, its existing street-highway systems, the mass public transportation situation, and the most likely characteristics of the nature of future transportation systems. They recommend that the planning for the Auraria Higher Education Center be based upon the assumption that public transportation systems will ultimately grow into effective and economical facilities which will generate large public usage. They indicate that the proposed air cushion demonstration project is a valuable one for the City and the Higher Education Center and urge that Site Master Planning integrate this demonstration project with the Center. If this is accomplished, three alternatives present themselves in terms of the elevation of the air cushion vehicle system. It could be located at ground level, which would be generally lower than the pedestrian level at the point pedestrian levels and street levels intersect, or it could be at the pedestrian level, or one story above the pedestrian level. Since the street level location would require the closing of necessary primary streets, this alternative has been discarded. Pedestrian level location is likely to act as a barrier to the pedestrian system if major intersections between the plaza level pedestrian system and the mass transit route coincide. Thus, if the proposed mass transit route is to run through the building zone portion of the site, it is suggested that it be one level above the plaza pedestrian level. If the mass transit routes are at the perimeter of the site where pedestrian traffic is to be a ground or street level, the mass transit system route should be elevated one story.

As indicated previously, the mass transit system is considered to be an evolving system, the first stage being the construction of the demonstration air cushion vehicle system extending from the Denver Bears Stadium west of the Auraria site to the heart of the Central Business District east of the Auraria site. The ultimate goal is a regional transit system which will very likely incorporate the demonstration system into its total fabric. At this point in time, no specific routes have been selected for the demonstration system. The Site Master Plan drawing indicates three alternatives in order to provide maximum flexibility in ultimate planning for the mass transit route as it passes through or by the Auraria site. The first alternative is the Lawrence Street Corridor which will set aside a potential east-west route passing through the heart of the building zones. This commitment is made with the full knowledge that the Lawrence Mass Transit Corridor may never be used and an alternate route may prove more feasible. Alternatives two and three do not pass through the building zones but are either adjacent to them or somewhat more remote. While three potential routes are shown on the Site Master Plan drawings, the actual number of planning alternatives is almost infinite so long as the building zones are not penetrated by the mass transit routes.

In addition to the elevated mass transit routes, a passenger station will be required at the Auraria Higher Education Center site. Obviously, student, faculty, staff, and visitor use of the Higher Education Center will be a prime generator of passenger load for the public transportation system. The Voorhees' analysis indicates that one passenger station should be adequate for the purposes of the Higher Education Center and recommends a central location be found for the station to provide for delivery of passengers to a point which is as close as possible to their ultimate destination.

Mass transit considerations are indicated only upon the Configuration/2 drawing. All routes shown thereon are equally applicable to Configuration/1.

MARKET/BLAKE PARKWAY
MARKET/BLAKE PARKWAY
SPEER VIADUCT
SPEER VIADUCT
BLAKE
MARKET
CHEROKEE
LARIMER
15TH STREET
Parking
CCD
HPER
Shared/
Central
3
Parking
LARIMER
HPER
HPER
St Cajetans Church
St Elizabeth Church
Emmanuel Chapel
2
Metro
Shared/
Peripheral
SPEER BOULEVARD
WEST COLFAX AVENUE
RIO CT
OSAGE
MARIPOSA
LIPAN
KALAMATH

CCD
Shared/
Central
CUDC
HPER
HPER
Metro
1
2
St Cajetans Church
St Elizabeth Church
Emmanuel Chapel
BLAKE
MARKET
SPEER VIADUCT
SPEER VIADUCT
13TH STREET
CHERRY
LARIMER
15TH STREET
14TH STREET
ARAPAHOE
13TH STREET
CURTIS
12TH STREET
CHAMPA
SPEER BOULEVARD
SPEER BOULEVARD
STOUT
CALIFORNIA
WEST COLFAX AVENUE
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
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Pedestrian Circulation

Pedestrian circulation on the Higher Education Center campus may be divided into two major categories — circulation outside the building zones and circulation inside the buildng zones. In order to provide a total working system, the two categories of pedestrian movement must be carefully coordinated between site planners and building planners.

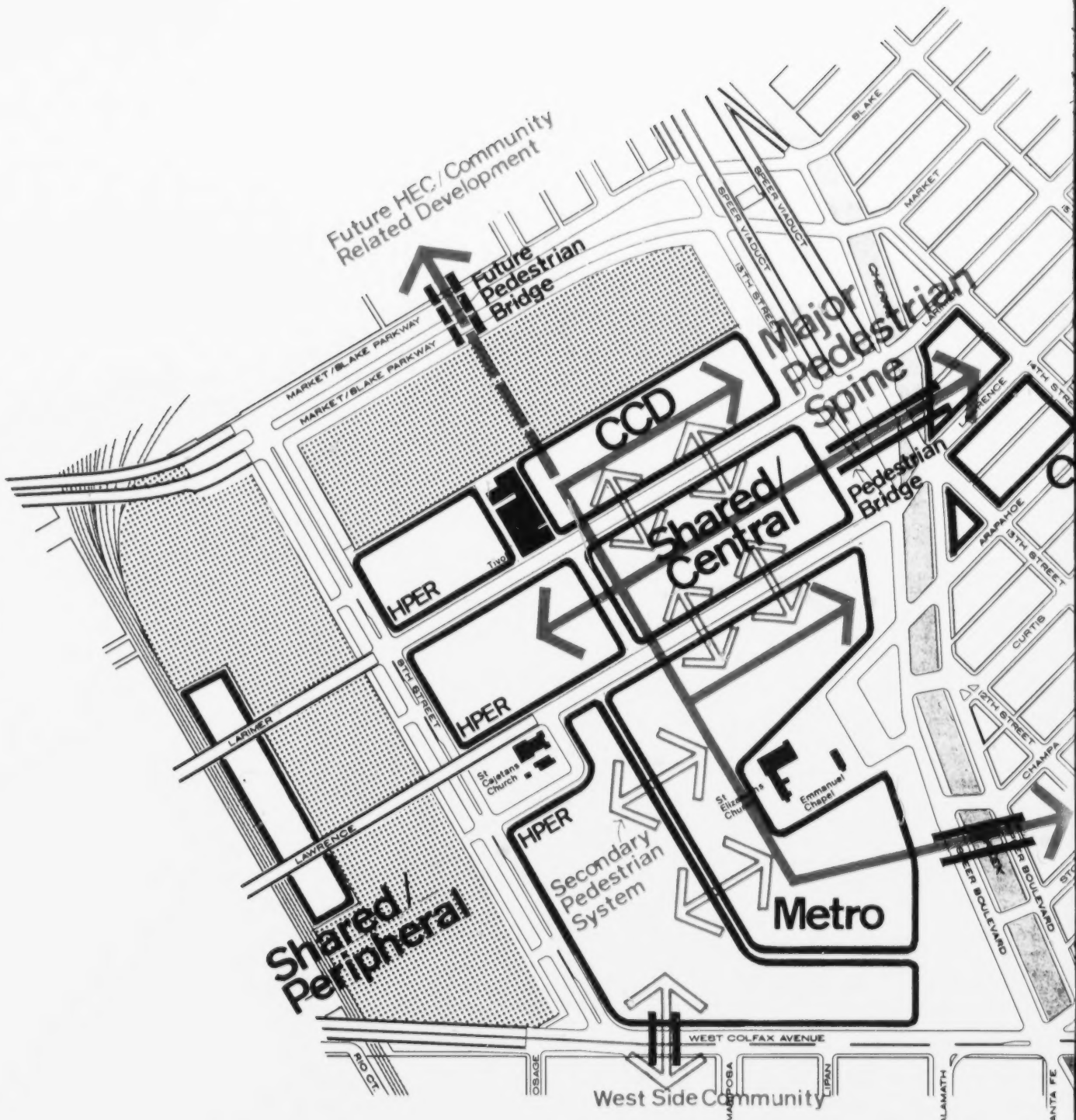
Principal on-site pedestrian circulation patterns deal with movement of persons entering the campus as pedestrians and those who enter the campus in automobiles and become pedestrians upon leaving their parked vehicle. A series of major pedestrian entrances to the Auraria Higher Education Center site is proposed. These entrances, which are above street level in the form of elevated bridge/plazas, connect major elements of the land surrounding the campus to the campus itself. Pedestrians from the Central Business District, retail, financial, governmental, and other centers, will reach the campus either through the University of Colorado/Denver Center and across a pedestrian bridge into the Shared Facilities; or through the Convention Center pedestrian bridgeway which connects with Metropolitan State College. As at all major pedestrian bridge/plaza entrances, the pedestrian circulation system feeds quickly into the major building spines after crossing relatively short environmental areas on the campus. Additional pedestrian bridges may well be constructed to provide access to the campus from the West Side Community, along the south boundary of the campus, and the possible future Higher Education Center/Community Related Development of land to the north of the campus. In both cases, these entrances will be bridges crossing above the primary street network at the campus perimeter. It should be noted that overhead bridges are recommended in preference to underpasses for pedestrian circulation. Several important factors bear upon this decision. First, some question regarding the feasibility of underpasses exists due to the presence of a subsurface water table in the Auraria Higher Education Center site. Secondly, underpasses are considered difficult to supervise. Further, and of considerable importance, the overhead bridge plazas have potential to become exceedingly pleasant visually, expressing in a very strong sense the connection of the Higher Education Center to the City which it serves. Finally, the walk on the bridge/plaza connectors should provide a pleasant human experience if the connectors are properly designed. Their visual quality may be enhanced through the use of landscaping; outdoor furniture such as seating units, sign kiosks, waste receptacles, and graphics; and well designed lighting fixtures which will enhance the appearance of the bridges day and night as well as promote safety.

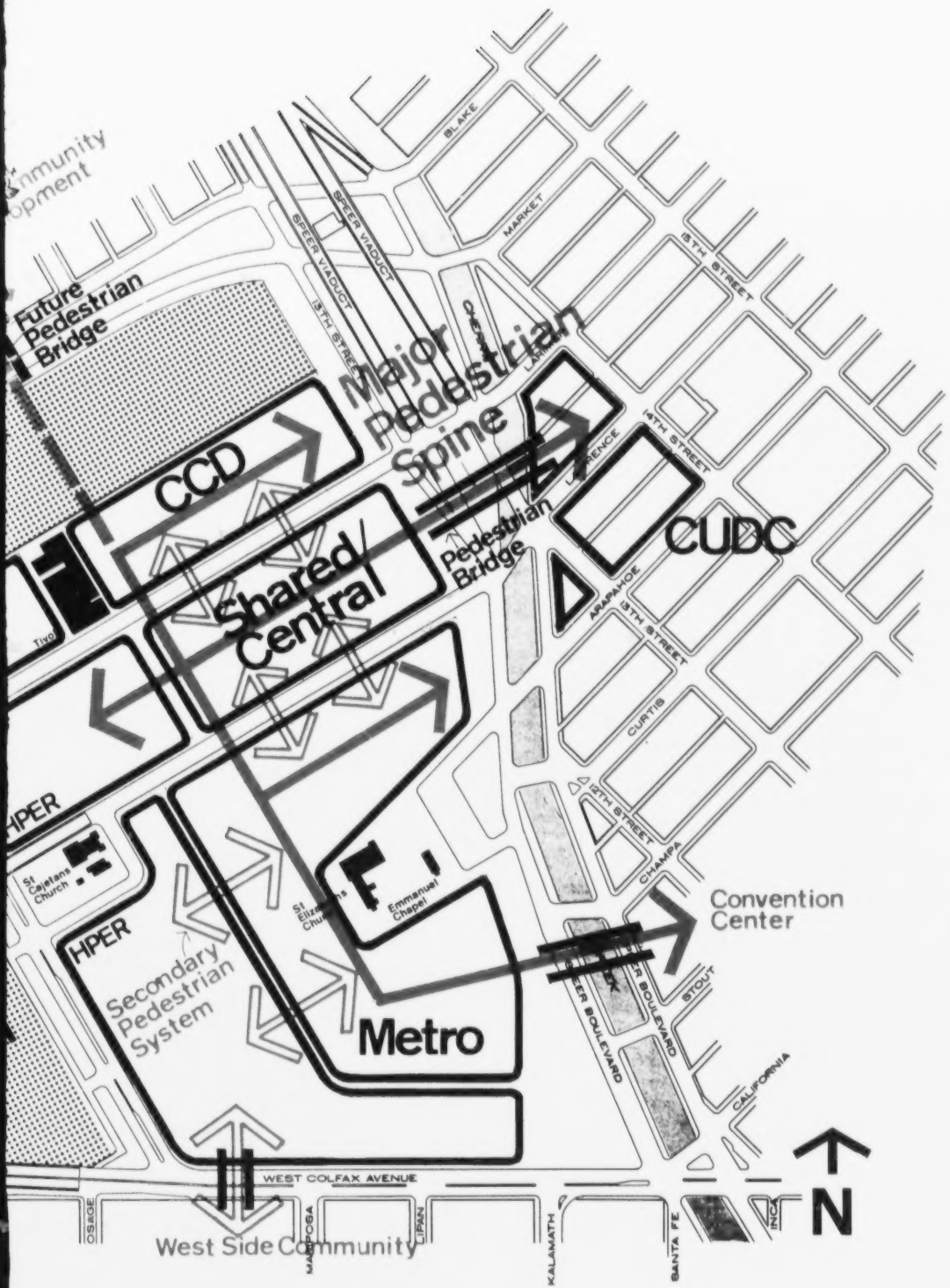
The pedestrian linkages from parking lots to the building zones are visualized as being paved sidewalks at grade level. Again, the effective use of landscaping, outdoor furniture, and lighting could combine to make the sidewalk system a pleasant place indeed. Conflicts between pedestrians and vehicles along these routes are minimized in comparison with those in the Central Business District due to the substantial reduction of the number of streets on the Higher Education Center site.

Pedestrian circulation patterns within the building zones are visualized as centering upon a major pedestrian spine which connects the building zones themselves as well as major areas within each building zone. This is the key element which ties the buildings of the Higher Education Center together visually and functionally. It is a powerful ordering element which may be either wholly outside buildings, wholly inside buildings if a megastructure concept is used, or some of each. It should provide a high degree of impact offering the pedestrian an exciting trip full of satisfying visual experiences as well as a convenient route from one point to another within the building cluster. It could be compared to the mall of a great shopping center filled with effective graphics, fountains, landscape or planting elements, seating units, banners, and many other carefully designed functional and visual elements. Important building spaces would be intimately related to the main pedestrian spine. Where the pedestrian spine connects the building zones, it would be in bridge form above street level and would completely avoid conflicts between vehicles and pedestrians. These connecting linkages might be enclosed, open, or a combination of both. A major focus of the main pedestrian spine would very likely be the mass transit passenger station. All in all, this major pedestrian circulation element should be an exciting space indeed.

Related to the major pedestrian spine will be secondary pedestrian ways feeding into buildings or portions of buildings. These elements would take the form of the more traditional corridor systems within educational facilities. The entire pedestrian circulation system in the building zones is seen as being a series of pleasant streets between work tasks.

The campus Master Planning Consultants urge those who undertake physical planning of the site and of the buildings on the site to take every possible opportunity to coordinate their work on individual projects in order to assure that an effective total project is the result of their efforts.


Future HEC/Community Related Development
Future Pedestrian Bridge
MARKET/BLAKE PARKWAY
MARKET/BLAKE PARKWAY
SPEER VIADUCT
BLAKE
MARKET
15TH STREET
Major Pedestrian Spine
CCD
Shared/ Central
Pedestrian Bridge
HPER
HPER
HPER
ARAPAHOE
17TH STREET
CURTIS
21ST STREET
CHAMPA
LARIMER
LAWRENCE
St Cajetans Church
Emmanuel Chapel
Secondary Pedestrian System
Metro
Shared/ Peripheral
WEST COLFAX AVENUE
West Side Community
RIO GT.
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE


Future Pedestrian Bridge
CCD
Major Pedestrian Spine
Shared/ Central
Pedestrian Bridge
CUDC
HPER
St Cajetans Church
Emmanuel Chapel
Secondary Pedestrian System
Metro
Convention Center
WEST COLFAX AVENUE
West Side Community
SPEER VIADUCT
BLAKE
MARKET
15TH STREET
14TH STREET
ARAPAHOE
CURTIS
CHAMPA
STOUT
CALIFORNIA
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
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Energy Distribution

The design of energy generation and distribution facilities was not primarily the function of the Site Master Planning Consultants. Since energy distribution is an important element of the Site Master Plan, LKA has included a brief description and a site drawing in this report in order to assist in its completeness of coverage.

The energy generation plant has been located in the west portion of the Shared/Central Building Zone. This is an effective location which places the generation plant in a position which is central to the building zones to which energy must be distributed. The main energy distribution loop will be located at the perimeter of the Shared/Central Building Zone and secondary distribution systems will extend from the main loop probing into the individual building zones for CUDC, Metro, CCD, and the Shared/Peripheral Building Zone. The Shared/Central Building Zone will be primarily served from the main loop at its perimeter.

This energy generation configuration is considered to be a highly efficient one. It is far more compact than systems carrying similar loads which are located on suburban campuses covering far more acres of land than this urban institution.

Land-Use Configuration/2 is drawn in this study. Configuration/1 would be basically similar and could extend a secondary system into the interim buildings if engineering studies indicated the wisdom of connecting these short term buildings into the central energy generation plant in lieu of continuing full use of the existing facilities which they contain. This is an optional matter and considerable flexibility exists in the Long-Range Site Master Plan.

MARKET/BLAKE PARKWAY
MARKET/BLAKE PARKWAY
SPEER VIADUCT
SPEER VIADUCT
BLAKE
MARKET
13TH STREET
Main Distribution Loop
CCD
HPER
Tivoli
Shared Central
Energy Generation Plant
HPER
13TH STREET
LARIMER
LAWRENCE
St Cajetan's Church
HPER
Secondary Distribution System
St Elizabeth Church
Emmanuel Chapel
Metro
Shared Peripheral
SPEER BOULEVARD
WEST COLFAX AVENUE
RIO GT.
OSAGE
MARIPOSA
UTICA
KALAMATH

Main Distribution Loop
CCD
Shared Central
CUDC
Energy Generation Plant
HPER
Secondary Distribution System
Metro
St Cajetan's Church
St Elizabeth's Church
Emmanuel Chapel
BLAKE
MARKET
SPEER VIADUCT
13TH STREET
14TH STREET
LAWRENCE
ARAPAHOE
CURTIS
CHAMPA
SPEER BOULEVARD
STOUT
CALIFORNIA
WEST COLFAX AVENUE
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
N

Expansion Potential

While it is anticipated that adequate provision is made for expansion of the buildings of the Auraria Higher Education Center within the individual building zones, the Long-Range Site Master Plan provides for growth beyond these zones which could conceivably occur. On many pages of this report, the planning consultants have discussed the urgent need of providing a campus framework, and a group of buildings within that framework, which permit a high degree of flexibility. Here is an illustration of flexibility in action.

Fulfillment of the Land-Use Plan, shown on previous pages in this section of the Long-Range Site Master Planning report, will serve to make strong commitments upon certain land uses. Certainly, where buildings are constructed, a long-term land-use commitment has been entered into. On the other hand, grass fields or surface parking lots do not represent such a major commitment because the dollar expenditure made to improve the land is a much smaller one. In other words, there is a hierarchy of land commitment which ranges from relatively low-cost land improvements such as surface parking facilities and health, physical education, and recreation fields; through intermediate land-use expenditures such as roadways, utility easements, etc.; up to the high levels of commitment which one establishes when a building is constructed on a site.

Recognizing this degree of commitment, it is possible to achieve a substantial amount of land-use flexibility. On that basis, the land-use configuration of the Auraria Higher Education Center site has been designed in a manner which places either health, physical education, and recreation areas near the buildings; or areas designed as environmental green spaces; or areas for surface automobile parking. This means that building zones may grow into these low-commitment kinds of land-use spaces. When this happens, the HPER fields, which are required for programmed purposes, may be extended into automobile parking zones. Reduction of the size of the parking zones may be achieved through lack of demand if effective public mass transit systems tends to replace automobiles as a mode of transportation or through consolidation of parking facilities through the conversion of land consuming surface parking lots into land-conserving multi-level parking structures. Parking structures, which are obviously far more expensive to construct than surface parking lots, may ultimately prove to be economically viable due to the growth in land values on or around the Auraria site.

The direction of expansion for each of the building zones, as recommended by LKA, is indicated on the campus plan drawing. It should be pointed out that, in addition to the possibility of expanding into air rights above the automobile parking structure projected adjacent to its building zone, CUDC might leapfrog Speer Boulevard/Cherry Creek and expand into the Auraria Urban Renewal Project site itself.

Thus, low-priority, land-use zones on the Auraria Higher Education Center site have been made into a land reservoir providing necessary flexibility which will permit the Auraria Higher Education Center to face up to growth which may be required in the somewhat unknown future.

CCD
Existing HPER
Shared/ Central
Existing HPER
St Cajetan's Church
St Elizabeth Church
Emmanuel Chapel
HPER
Metro
Shared/ Peripheral
RIO CT.
OSAGE
MARIPOSA
LIPAN

CCD
Shared/
Central
CUDC
Existing
HPER
HPER
Metro
Possible
Air Rights Expansion
St Cajetan's Church
St Elizabeth Church
Emmanuel Chapel
18TH STREET
17TH STREET
16TH STREET
14TH STREET
13TH STREET
12TH STREET
ARAPAHOE
CHAMPA
STOUT
CALIFORNIA
WEST COLFAX AVENUE
OSAGE
MARIPOSA
LIPAN
KALAMATH
N

Site Development Costs/ Schedule

Since this Long-Range Site Master Planning report is also designed to serve as a Program Planning document, it is appropriate for it to include preliminary cost estimates and time schedules in connection with the construction of site facilities. For the most part, information provided in this section corresponds with elements of the Auraria Higher Education Center described on preceding pages of this report. Cost estimates include all aspects of site development with the exception of the development of areas of the site which lie within the building zones for CUDC, Metro, CCD, and the Shared Facilities. Development of these land areas will be described in Program Planning reports produced in a series of separate studies either already completed or presently under way. Also excluded from the cost estimates contained in this book are the several pedestrian bridge/plazas and the connecting bridges between the Higher Education Center and the community as well as those between the several building zones at the Higher Education Center itself. Since a number of separate consultants are preparing cost estimates as a portion of their services in connection with the Auraria Higher Education Center, LKA urges careful coordination of all cost estimates in order to avoid omission or duplication of items.

The Time Schedule in connection with site development is of considerable importance. Some elements of the site development visualized in this report are already needed by the institutions. For example, CUDC is presently seriously short of automobile parking and health, physical education, and recreation facilities. Thus, CUDC anxiously awaits the completion of these elements of the Auraria Higher Education Center in order to solve serious facility problems which already exist. Further, Metropolitan State College expects to complete its first building increment for occupancy by fall 1974. If this schedule is to be met, it will be necessary for Metro to be served by certain utility systems long before their buildings are completed in order to allow construction processes to take place in an effective manner. The Community College of Denver may very well occupy interim facilities on the Auraria Urban Renewal Project site in the near future. If this occurs, they too will seek parking facilities, HPER facilities, etc. While three pressing needs for site development have been recited, it is likely there are many more. If these needs are to be met, the Time Schedule must be carefully considered and appropriate steps be taken to provide funding, manpower and other elements essential to implementation of the site development construction program.

One other critical aspect bears upon the Time Schedule. It is presently estimated that construction costs are rising at a rate in the general magnitude of 1% per month. In order to hold construction costs at the lowest possible level, present projections indicate the wisdom of maintaining the most rapid pace of construction feasible within funding and other limitations.

The Time Schedule calls for funding, planning, and construction of site facilities on a phased basis. Funding for the first phase is

to be sought from the State Legislature in the spring of 1971. If this funding is not achieved, the entire process of constructing the Auraria Higher Education Center will likely be delayed and, as a consequence, all cost projections will face reconsideration and probable escalation. Completion of full site development as described in this report is projected to take place by fall 1976.

It would be well to describe the concepts and methodology related to the cost estimates prior to presentation of the estimates themselves. To begin with, the development of the Auraria Higher Education Center site is an exceedingly complex project. It deals with a broad array of elements, many of which already exist in part, or must connect to like systems which already exist. At the Program Planning Phase of development of a project such as this, cost estimates must be of a broad and general nature. As the project moves into Design Development and Construction Document phases of Physical Planning, more definitive estimates will be possible. These later cost estimates will be based upon a far more comprehensive foundation of knowledge related to the scope of the work and the nature of existing systems with which the new work must be related. Therefore, it is urged that those who deal with this report understand that the cost estimates which it contains are carefully prepared but should only be considered as being useful for general guidance purposes and initial funding of further professional services.

Three major steps have been undertaken in computing and presenting cost projections. First, a cost estimate has been prepared based upon the use of cost factors considered to be valid as of February 1971. This cost estimate covers the full scope of the project including physical planning, construction, supervision, and contingencies. The next step involved dividing the project into phases and escalating the February 1971 costs to reflect projected costs at the midpoint of each construction phase. Finally, the cost estimates were converted to a chart setting forth the approximate amounts of funds to be appropriated by the Legislature on an annual basis extending from 1971 through 1974.

The tables which follow present basic cost projection data described above. Data in these tables are supported by more detailed cost information which is set forth in Appendix B.

The following table projects the cost of the total project assuming the midpoint of the construction period to be February 1971. Each construction element identified in the table has been given a key number related to a similar number on the campus plan map in this section of the report. This will permit the reader to identify the location of the majority of construction elements on the Site Plan. It should be pointed out that traffic signalization and utilities are distributed generally around the site and are not identified by key number on the campus plan drawing.

TABLE A

PROJECTED SITE DEVELOPMENT COST FEBRUARY 1971

PHYSICAL PLANNING		
1/ Architectural and engineering		$ 392,140
2/ Site work		
a. Site survey	17,000	
b. Soil testing (supplementary information related to study already done for State)	6,000	
c. Subtotal		23,000
3/ Contingency (10% of 1 and 2c)		41,500
4/ Total professional fees		$ 456,640

CONSTRUCTION

KEY NO.	ELEMENT	COST/ ACRE	ACRES (Approx)	ESTIMATED COST
1/	Parking Lots	$25,020	42.5	$1,063,350
2/	HPER — Environmental	23,110	24.5	566,200
3/	HPER — Hard Surface	68,850	3.0	206,550
4/	St. Elizabeth's Church	—	—	42,800
5/	8th Street	33,600	4.28	143,800
6/	Lawrence Turn Loop	32,580	1.0	32,580
7/	Environmental	31,550	9.0	283,950
8/	Relocate Emmanuel Chapel	—	—	70,000
9/	Traffic Signalization	—	—	100,000
10/	Fencing — Physical Plant	—	—	10,000
11/	Demolition — Interim Buildings	—	—	463,000
12/	Storm Sewers	—	—	150,000
13/	Sanitary Sewers	—	—	490,700
14/	Water Lines	—	—	270,000
15/	Total Construction Costs			$3,892,930

SUPERVISION — CONTINGENCIES	
1/ Construction supervision by A/E	$ 36,000
2/ Contingencies (10% x $3,892,930)	389,290
3/ Total	$ 425,290
TOTAL PROJECT COST	$4,774,860

The next three tables convert the total cost estimate set forth in the preceding table into a series of phases. The estimate for each phase is presented in a table which covers the total project cost. This table is supplemented at each phase by a table which details the breakdown of the construction cost (Item C-2).

SITE DEVELOPMENT COSTS — PHASE 1

TOTAL PROJECT COST

A/ Professional Service	
1. Program Planning	$ - 0 -
2. Architectural and Engineering	185,000
3. Surveys and Site Investigation	15,000
Subtotal	$ 200,000
B/ Land Acquisition	- 0 -
C/ Construction	
1. Structure	- 0 -
2. Site Work ($900,200 escalated to 1973 — see breakdown.)	1,129,180
3. Landscaping	(In Item C-2)
4. Built-In Equipment	- 0 -
D/ Utilities from supply to 5′ from building	- 0 -
Subtotal	$1,129,180
E/ Construction Supervision by A/E	10,000
F/ Contingencies 10%	112,900
G/ Movable Equipment	- 0 -
TOTAL PROJECT COST	$1,452,080

BREAKDOWN OF CONSTRUCTION COST ITEMS (C-2)

SITE WORK ITEM	COST
1/ Parking lots 10.5 acres @ $25,020/acre	$ 262,700
2/ HPER — soft surface 4.5 acres @ $23,110/acre	104,000
3/ HPER — hard surface	- 0 -
4/ St. Elizabeth's Church	42,800
5/ Environmental spaces	- 0 -
6/ Relocation of Emmanuel Chapel	70,000
7/ Auto-pedestrian traffic signalization	- 0 -
8/ Fencing at Physical Plant	- 0 -
9/ Storm sewers	40,000
10/ Sanitary sewers	290,700
11/ Water lines	90,000
12/ Gas lines	- 0 -
13/ Steam lines	- 0 -
14/Electrical distribution	- 0 -
15/ Telephone	- 0 -
16/ Police and fire alarm	- 0 -
TOTAL — Based upon 1971 cost factors	$ 900,200
12% escalation to 1972	1,008,200
12% escalation to 1973	1,129,180

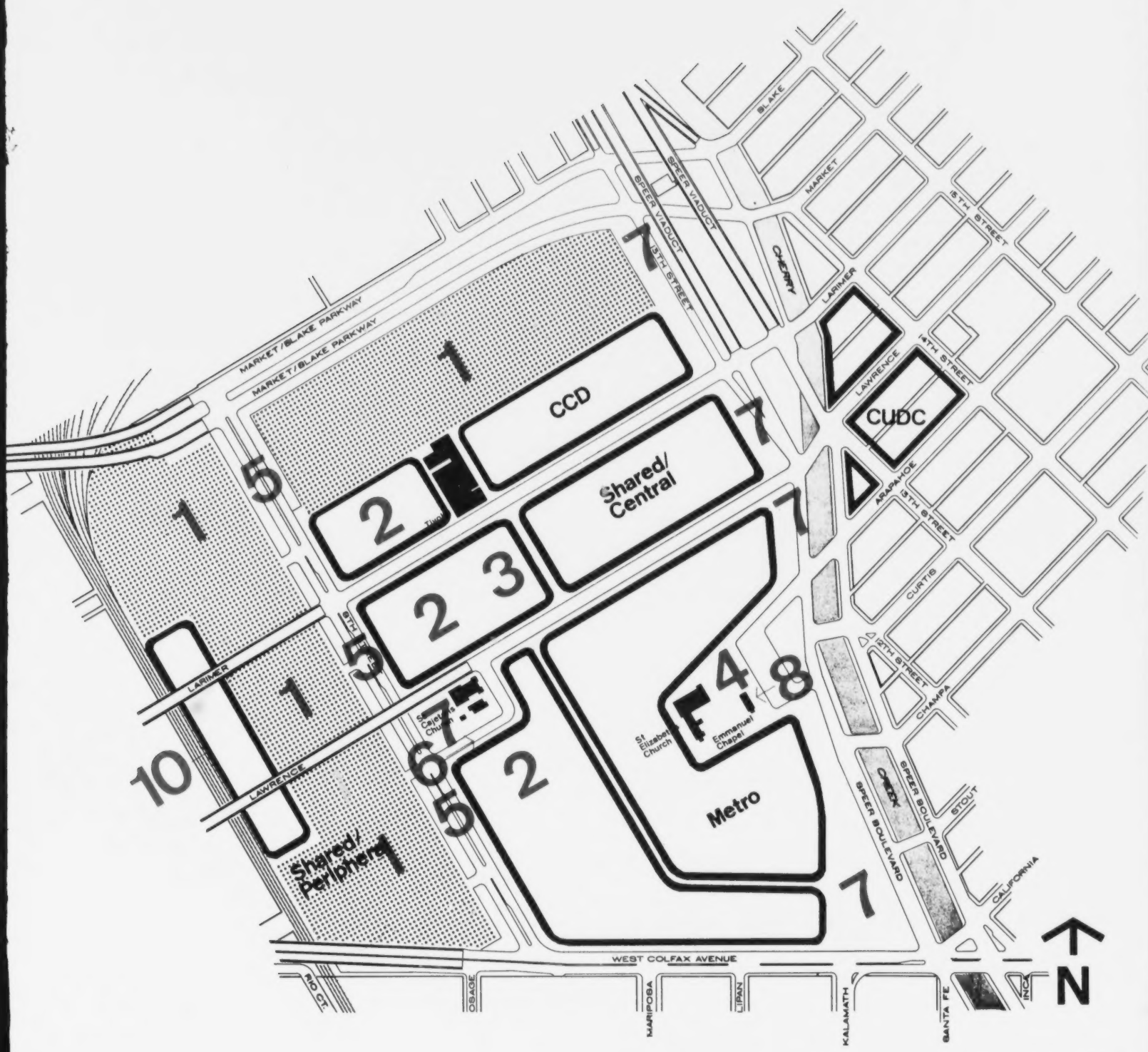
SITE DEVELOPMENT COSTS — PHASE 2

TOTAL PROJECT COST

A/ Professional Service	
1. Program Planning	$ - 0 -
2. Architectural and Engineering	149,340
3. Surveys and Site Investigation	7,300
Subtotal	$ 156,640
B/ Land Aquisition	- 0 -
C/ Construction	
1. Structure	- 0 -
2. Site Work ($1,433,650 escalated to 1974 — see breakdown.)	2,014,170
3. Landscaping	(In Item C-2)
4. Built-In Equipment	- 0 -
D/ Utilities — from supply to 5′ from building	- 0 -
Subtotal	$2,014,170
E/ Construction Supervision by A/E	14,000
F/ Contingencies 10%	201,420
G/ Movable Equipment	- 0 -
TOTAL PROJECT COST	$2,386,230

BREAKDOWN OF CONSTRUCTION COST ITEMS (C-2)

SITE WORK ITEM	COST
1/ Parking lots 16 acres @ $25,020/acre	$ 400,300
2/ HPER — soft surface 10.0 acres @ $23,110/acre	231,100
3/ HPER — hard surface 2 acres @ $68,850/acre	137,700
4/ Environmental spaces 4.5 acres @ $31,550/acre	141,970
5/ Lawrence turn loop	32,580


MARKET/BLAKE PARKWAY
MARKET/BLAKE PARKWAY
SPEER VIADUCT
SPEER VIADUCT
BLAKE
MARKET
15TH STREET
CHERRY
LARIMER
LAWRENCE
14TH STREET
CCD
CUDC
Shared/
Central
ARAPAHOE
15TH STREET
CURTIS
16TH STREET
CHAMPA
LARIMER
8TH
LAWRENCE
St Elizabeth Church
Emmanuel Chapel
Metro
CREEK
SPEER BOULEVARD
SPEER BOULEVARD
STOUT
CALIFORNIA
Shared/
Peripheral
WEST COLFAX AVENUE
RIO GT.
OSAGE
MARIPOSA
LIPAN
KALAMATH
SANTA FE
INCA
N

6/ Auto-pedestrian traffic signalization	40,000
7/ Storm sewers	60,000
8/ Sanitary sewers	200,000
9/ Water lines	180,000
10/ Gas lines	- 0 -
11/ Steam lines	- 0 -
12/ Electrical distribution	- 0 -
13/ Telephone	- 0 -
14/ Police and fire alarm	- 0 -
15/ Fencing at physical plant	10,000
TOTAL — Based upon 1971 cost factors	$1,433,650
12% escalation to 1972	1,605,690
12% escalation to 1973	1,798,370
12% escalation to 1974	2,014,170

SITE DEVELOPMENT COSTS — PHASE 3	
TOTAL PROJECT COST	
A/ Professional Service	
1. Program Planning	$ - 0 -
2. Architectural and Engineering	97,000
3. Surveys and Site Investigation	3,000
Subtotal	$ 100,000
B/ Land Aquisition	- 0 -
C/ Construction	
1. Structure	- 0 -
2. Site work ($1,096,020 escalated to 1975 — see breakdown.)	1,724,600
3. Landscaping	(In Item C-2)
4. Built-In Equipment	- 0 -
D/ Utilities — from supply to 5' from building	- 0 -
Subtotal	$1,724,600
E/ Construction Supervision by A/E	12,000
F/ Contingencies 10%	172,460
G/ Movable Equipment	- 0 -
TOTAL PROJECT COST	$2,009,060

BREAKDOWN OF CONSTRUCTION COST ITEMS (C-2)

SITE WORK ITEM	COST
1/ Parking lots 16.0 acres @ $25,020/acre	$ 400,300
2/ HPER — soft surface 10.0 acres @ $23,110/acre	231,100
3/ HPER — hard surface 1 acre @ $68,850/acre	68,850
4/ Environmental spaces 4.5 acres @ $31,550/acre	141,970
5/ 8th Street 4.282 acres @ $33,600/acre	143,800
6/ Auto-pedestrian traffic signalization	60,000
7/ Storm sewers	50,000
8/ Sanitary sewers	- 0 -
9/ Water lines	- 0 -
10/ Gas lines	- 0 -
11/ Steam lines	- 0 -
12/ Electrical distribution	- 0 -
13/ Telephone	- 0 -
14/ Police and fire alarm	- 0 -
TOTAL — Based upon 1971 cost factors	$1,096,020
12% escalation to 1972	1,227,540
12% escalation to 1973	1,374,840
12% escalation to 1974	1,539,820
12% escalation to 1975	1,724,600

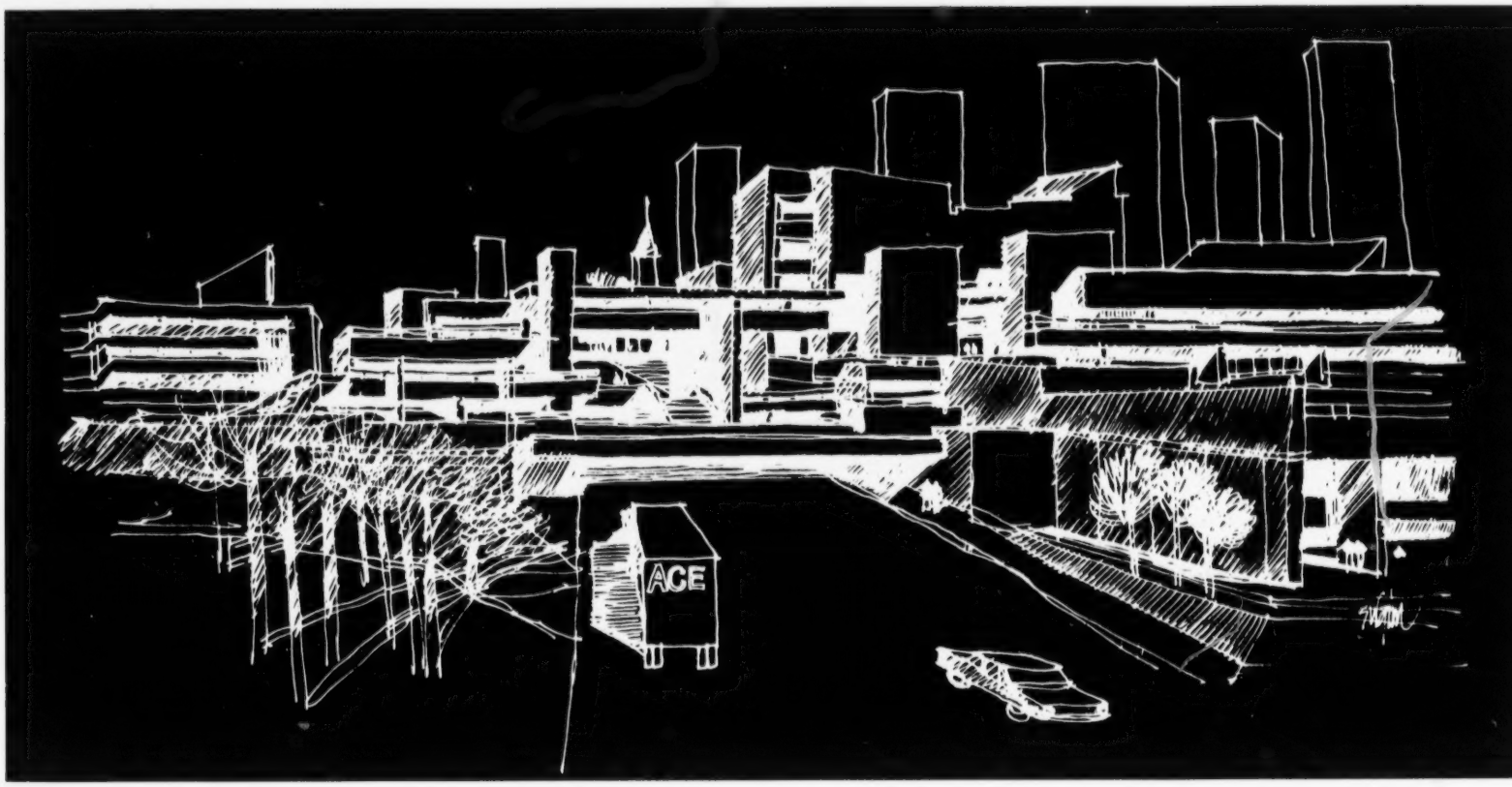
In order to determine the approximate magnitude of appropriated funds required for the site development project the following chart has been prepared. In this chart, estimates are made for the amount of funding required in 1971, 1972, 1973, and 1974. For each of the preceding years, the appropriate portion of the cost of Phases 1, 2, and 3 has been applied. Final funding to achieve the total project will be completed in 1974.

APPROPRIATION CHART

PROJECTION OF ESTIMATED PROJECT COST

	1971			1972			1973			1974		
PROJECT PHASES	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Physical Planning	$200,000	0	0	0	$156,640	0	0	0	$100,000	0	0	0
Construction (site work)	0	0	0	$1,129,180	0	0	0	$2,014,170	0	0	0	$1,724,600
Construction Supervision Contingencies	0	0	0	122,900	0	0	0	215,420	0	0	0	184,460
ANNUAL PROJECT COST	$200,000	0	0	$1,252,080	$156,640	0	0	$2,229,590	$100,000	0	0	$1,909,060

5 Summary



Architectural Philosophy

Within the visual fabric of Denver's inner city, the Higher Education Center will stand as a prominent symbol of the importance of education to the well-being of the city. It will be a part of the city yet, at the same time, separated from the city. While it is a separate stronghold of education, its relationships with other functional elements of the city must necessarily be intimate ones. Because of this, it must issue a strong visual invitation to encourage the people of the city to participate in matters educational. It must also provide appealing routes for those who wish to extend their educational opportunities into the city as a sort of learning laboratory. Thus, the Higher Education Center must not have visual walls which tend to discourage interchange of people, knowledge, and resources between it and the city which it serves. It must stand as a symbol of education, but it must also stand as a visual part of the city's fabric.

The Higher Education Center is big in every sense. Its educational program covers nearly the entire spectrum of higher education. Its population of students, faculty, administration and staff is greate than many of the towns in Colorado. Its facilities will be consider able. Within this framework, the individual human being will see visual expression of his own identity. In order to assist in this ques for identity, it would seem that the architecture of the Higher Edu cation Center should express its various elements. Each buildin cluster should have a visual identity of its own. Within the clusters further visual identification would seem compatible with the huma scale. A strong sense of "place" must be established. In man respects this may be achieved by the architecture — if the arch tecture is sympathetic with human characteristics.

The matter of building growth flexibility influences the architec tural philosophy. A tight classical design concept is not well suite to incremental building growth. Rather, structures develope around a system of units which can be added, like leaves on a tree has greater potential for maintaining a sense of unity while in creasing in size.

An educational facility is both a functional environment and a vis ual environment. As a functional environment it must be capable o housing the dynamic educational programs which it is designed t

serve. It must provide human shelter offering a high degree of body comfort. As a visual environment, it must create a spirit of well-being and importance among the people who come to the Higher Education Center. It should say to all that "it cares about you as an individual and it feels that the process of education is a broad and important one."

The visual characteristics of the Auraria Higher Education Center occupy a position of high importance. As in-depth Physical Planning is accomplished on the site and as Master Planning and Physical Planning is accomplished within the building zones, the planners and educators must exercise the highest degree of judgment and compassion. The problem of visual environment at the Auraria Higher Education Center is one which offers considerable challenge and must be faced up to through the use of planners and architects of great talent, sympathy, and understanding. They must give consideration to the nature of the city, the educational processes, and the people who will be involved in the Higher Education Center.

Action Plan

Action required in order to implement the furtherance of development of the site for the Auraria Higher Education Center deals with two basic ingredients. First, appropriate funding must be achieved. The Interim Policy Board/Auraria Higher Education Center has already requested funding based upon data provided by the Site Master Planning Consultants. Next, it is urged that a structure of organizational ability be established to coordinate development of all aspects of the Higher Education Center. This organizational structure might well include the following:

1/ Consulting planners and architects for CUDC, Metro, CCD, and the Shared Facilities — A group of planning/architectural firms will be required to provide necessary Master Planning services within their individual bulding zones and to provide architectural services for the buildings themselves. A planning/architectural firm will also be required to provide continuing service in connection with the site elements beyond the building zones.

2/ Design Review Board — It has been suggested that a board composed of recognized planners and architects be made operative on a continuing basis to review the work of the consulting planners and architects to attempt to assure that this work is of the highest possible caliber and is fully coordinated with the context of the total Higher Education Center.

3/ State Organization — In order to represent the governing board of the Auraria Higher Education Center and boards under which each of the components operate, it would seem appropriate that a central State office be formed as an expansion of or successor to the present Auraria Higher Education Center Planning Board. This organization will act as a liaison between the State and the consultants through which data and communications may be channeled. This organization will undertake a considerable task during the years of planning and construction of the Auraria Higher Education Center.

While the above organization structure is only one of many suggestions which are possible, the primary point is that an organizational structure containing great ability and knowledge is necessary in order to undertake and complete the construction of the Auraria Higher Education Center. The precise definition of this organization structure must be established in the immediate future for the effective planning of the Center is dependent upon its work.

IN CLOSING

The following paragraph was first printed in 1968 and appeared in the Feasibility Study then conducted for the Auraria Higher Education Center. This statement seemed to be an appropriate way to close the Site Master Planning report for the Auraria Higher Education Center. "The Higher Education Center is a campus IN the city, designed FOR the city. It is large and complex because the city is large and complex. It offers a broad scope of educational opportunity because the city requires people of many talents to fill its vast job market. It is involved in the educational, economical, social and cultural fabric of the city. It will generate meaningful exchanges with the city. In a very real sense, it is a visual symbol of the future of the city — for education is the very heart of the future."

6/Appendix

A/Planning Workshop Participants

The following consulting organizations and persons participated in the one-week Planning Workshop which was jointly funded by the Educational Facilities Laboratories, Inc./Ford Foundation and the State of Colorado. The workshop was conducted in August 1970.

LAMAR KELSEY & ASSOCIATES —
COLORADO SPRINGS, COLORADO

F. Lamar Kelsey FAIA
Robert R. Swaim

ALBERT C. MARTIN & ASSOCIATES —
LOS ANGELES, CALIFORNIA

Robert S. Wilkerson AIA
Edward C. Abrahamian

SASAKI, DAWSON, DE MAY ASSOCIATES, INC. —
WATERTOWN, MASSACHUSETTS

John Adelberg

EDUCATIONAL FACILITIES LABORATORIES, INC. —
NEW YORK, NEW YORK

Ben E. Graves

MARVIN HATAMI & ASSOCIATES — DENVER, COLORADO

Marvin Hatami AIA

ALAN M. VOORHEES, TRANSPORTATION CONSULTANTS —
McLEAN, VIRGINIA

Alan M. Voorhees
Robert E. Leigh

B/Supporting Cost Data

The following cost data support cost projections contained in Section 4 of the Long-Range Site Master Planning report.

A/ Assumptions:

1. Denver Urban Renewal Authority will demolish all buildings except those which will have interim usage, and those scheduled to remain (St. Elizabeth's Church, St. Cajetan's Church, Emmanuel Chapel and Tivoli).
2. The component institutions will do all site development within their assigned site areas.
3. The other projects will include pedestrian overpasses (bridge/plazas and bridges) connecting component institution sites and the site to its environs.
4. Each component institution will provide the necessary utility tunnels, etc., to connect their buildings to the central heating — cooling plant and utility loop contained within the Shared Facility area.
5. These cost factors relate to February 1971. Construction occurring after that time shall have these cost factors increased by 12% per year.
6. All site areas will be night lighted for functional and safety reasons. Intensity will vary to be appropriate to each use.

B/ Cost factor items

1. Parking lot

a. Site clearing (removal of existing asphalt paving, concrete curb and gutter, etc.)	$ 2,150 per acre
b. Rough grading and filling building excavations	6,000 per acre
c. Gravel base course (4")	3,500 per acre
d. Asphalt paving (2")	5,800 per acre
e. Concrete curb and gutter	480 per acre
f. Striping — 125 parking stalls per acre	350 per acre
g. Concrete walks	360 per acre
h. Parking lot lighting — 0.13 watts per sq. ft.	5,500 per acre
i. Signs	136 per acre
j. Landscaping	744 per acre
k. Cost per acre	$25,020 per acre

2. HPER/environmental — soft surface

a. Site clearing (removal of existing asphalt paving, concrete curb and gutter, etc.)	$ 2,150 per acre
b. Rough grading and filling building excavations	6,000 per acre
c. Finish grading (4" topsoil)	3,500 per acre
d. Sodding	3,050 per acre
e. Concrete walks	360 per acre
f. Underground lawn watering system	4,000 per acre
g. Field lighting	900 per acre
h. Walk lighting	700 per acre
i. Landscaping (trees and shrubs)	2,450 per acre
j. Cost per acre	$23,110 per acre

3. HPER — hard surface	
a. Site clearing (removal of existing asphalt paving, concrete curb and gutter, etc.)	$ 2,150 per acre
b. Rough grading and filling building excavations	6,000 per acre
c. Gravel base course (4")	3,500 per acre
d. Concrete slab (4")	20,900 per acre
e. Fence	5,000 per acre
f. Nets, striping, etc.	1,300 per acre
g. Lighting	30,000 per acre
h. Cost per acre	$68,850 per acre
4. St. Elizabeth's Church	
a. Drive and parking area (refer to parking lot cost factor less landscaping) 1.5 acres @ $24,276 per acre	$36,400 per acre
b. Landscaping — $2,130 per acre @ 3 acres	6,400 per acre
c. Total cost	$42,800 per acre
5. 8th Street — 4 lanes with center strip of landscaping and left turn storage lane	
a. Site clearing (removal of existing asphalt paving, concrete walks, curbs and gutters, etc.)	$ 4,000 per acre
b. Base course and grading	4,900 per acre
c. Asphalt paving (2")	4,800 per acre
d. Concrete curb and gutter	6,000 per acre
e. Striping	100 per acre
f. Concrete walks	3,600 per acre
g. Street lighting	9,000 per acre
h. Landscaping and water hydrants at center islands	1,200 per acre
i. Cost per acre	$33,600 per acre
6. Lawrence turn loop	
a. Site clearing (removal of existing asphalt paving, concrete curb and gutter, etc.)	$ 2,150 per acre
b. Base course and grading	4,900 per acre

c. Asphalt paving (2")	4,100 per acre
d. Concrete curb and gutter	5,300 per acre
e. Striping	130 per acre
f. Concrete walks	6,500 per acre
g. Street lighting	9,500 per acre
h. Cost per acre	$32,580 per acre

7. Environmental spaces

a. Site clearing (removal of existing asphalt paving, concrete curb and gutter, etc.)	$ 2,150 per acre
b. Rough grading and filling building excavations	6,000 per acre
c. Finish grading (4" topsoil)	3,200 per acre
d. Sodding	2,500 per acre
e. Concrete walks, special paved areas	4,000 per acre
f. Underground lawn watering system	4,000 per acre
g. Field lighting and walk lighting	3,200 per acre
h. Landscaping	4,000 per acre
i. Campus furniture (benches, etc.)	2,500 per acre
j. Cost per acre	$31,550 per acre

8. Relocation of Emmanuel Chapel — Includes moving, new foundation, repair of moving damage, etc. Note that this estimate assumes the Chapel may be moved without dismantling — $ 70,000

9. Auto-pedestrian traffic signalization — 100,000

10. Fencing at Physical Plant — 10,000

11. Demolition of interim — use buildings

a. CCD plans for 156,000 GSF of interim-use buildings Demolition cost @ 156,000 sq. ft x 14 ft. height @ 10¢ per cu. ft.	218,000
b. CUDC plans for 175,000 GSF of interim-use buildings Demolition cost @ 175,000 sq. ft. x 14 ft. height @ 10¢ per cu. ft.	245,000
c. Total demolition cost	$463,000